TECHNOLOGY DEPT.

Telephone Engineer and Management

61-5

MARCH 1, 1957

PUBLIC LIBRARY
MAR 8 1957
DETROIT

THE NATIONAL TELEPHONE MAGAZINE

FEATURING IN THIS ISSUE

★ EDITORIAL — "60 CANDLES ON THE CAKE"
★ PROBLEMS OF SMALL COMMUNITY OPERATIONS
★ PLANNING PLANT PRACTICES, *by T. DeWitt Talmage*
★ A NEW TE&M OPERATING MANUAL — "OUTDOOR BOOTHS"

is a big spread a good spread?

Not for him! But definitely yes when you're talking about rising costs and profit margins. So if your directory is off the straight and narrow, blaze a trail to our Complete Directory Service Plan.

We completely handle the directories of independent telephone companies in 4400 communities today . . . and show them larger revenues than they thought possible.

Like to know how it's done? We'll be happy to show you. Just call or write our nearest office.

GENERAL SYSTEM

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Busse Highway • DES PLAINES, ILLINOIS • VAnderbilt 4-2164

Divisional Sales Offices

COLUMBIA, Mo. • 811 Cherry Street • GIbson 2-6907
DURHAM, N.C. • 108 E. Parrish Street • Tel: 5133
ERIE, Penna. • G. Daniel Baldwin Building • Tel: 2-4187
FORT WAYNE 2, Ind. • 229 E. Berry Street • Eastbrook 3477
LEXINGTON, Kentucky • 157 Walnut Street • Tel: 4-7626
LONG BEACH 15, Calif. • 1775 Ximeno Ave. • HEmlock 3-7441
MADISON, Wisconsin • Tenney Building • ALpine 7-1667
SAN ANGELO, Texas • 110 South Taylor St. • Tel: 6738
SPOKANE, Wash. • 108 N. Washington St. • MAdison 4-4336
SPRINGFIELD, Ill. • Myers Bros. Building • Tel: 8-3425

"It's IRRADIATED and the dielectric strength is doubled!"

NEW . . . IMPROVED

SUPERIOR TELEPHONE CABLE

NOW contains a polyethylene tape* developed by radiation chemistry!

New, improved SUPERIOR TELEPHONE CABLE now provides three additional features to assure you of top performance under all conditions:

- **Doubled dielectric strength . . .** for greater lightning protection.
- **Practically uniform capacitance . . .** the deviation in mutual capacitance now less than 1½%.
- **Insulation "graded" to conductor sizes . . .** to match closely the universal transmission standards for loading coils and terminating equipment.

"Super-Splice"

Make splices MOISTUREPROOF, WATERPROOF . . . from inside out!

New Superior "Super-Splice" makes the splice permanently as good as the cable. An REA Standard. Write for details.

SUPERIOR CABLE is accepted by REA and conforms to REA Spec. PE14.

Use all-plastic SUPERIOR CABLE for aerial and direct burial installations . . . it's resistant to moisture, ozone, oils, acids and alkalis! Available with regular spiral shield (5 mil aluminum) or, in certain sizes at slight additional cost, longitudinal shield (8 mil aluminum).

A self-contained tape, marked at one foot intervals up to 10,000 feet, guarantees the footage you receive and lets you measure the footage you use.

For Top Performance at less cost . . . order SUPERIOR CABLE today!

For detailed information and price, write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

*Irradiated polyethylene film, a General Electric product.

"Golly...everybody's ordering Automatic's Transistorized Repeaters"

No wonder the young lady is amazed. Thousands of AT-2 and AT-3 transistorized repeaters were placed in service in the first year—and the orders keep piling in. Here's why:

These repeaters offer an easy, inexpensive way to raise transmission on trunks and long lines. When combined, they overcome up to 85% of the line loss, provide up to 14 dB gain. On existing circuits, you'll avoid costly cable-loading; on new circuits, you can avoid the use of heavier gauge wire.

There are other advantages you'll like too. Maintenance is far lower because transistors are used. No special power supply or cooling facilities are needed. And these repeaters are space-saving—8 mount side-by-side on a 19" rack.

Interested? Then write today for full details. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

GENERAL SYSTEM INDEPENDENT

ORIGINATORS OF THE DIAL TELEPHONE

TELEPHONE ENGINEER & MANAGEMENT

THE NATIONAL TELEPHONE MAGAZINE

MARCH 1, 1957

Vol. 61 / No. 5

RAY W. SMITH,
Publisher and Editor
JOHN G. REYNOLDS,
Managing Editor
ROY F. SMITH,
Advertising Director
DONALD C. SORENSEN,
Advertising Manager
HELEN G. McCORKLE,
Production Manager
EMILY BUDDE,
Editorial Assistant
JOHN S. REED,
Technical Editor
BILL CORMAN,
Small Company Editor
ROLAND DAVIES,
FRED HENCK,
Washington Editors
JAY G. MITCHELL,
Questions & Answers Editor
MRS. W. L. FAIR,
E. E. GENTRY,
PHIL GLANZER,
GEORGE SHILAKES,
Field Correspondents

PAT LAWHORN,
Circulation Manager

TELEPHONE ENGINEER AND MANAGEMENT

Published on the 1st and 15th of each month by Telephone Engineer Publishing Corp.

Executive, Editorial and Advertising Offices 7720 N. Sheridan Road, Chicago 26, Ill. Telephone: ROgers Park 4-3040.
Publication Office: 600 South Seventh St., Rochelle, Ill.

Single Copies, U. S. and possessions, 50¢. Subscription Rates: $3.00 per year for U. S. and Possessions: Canada, $3.50 per year; all other countries, $5.50.

Entered as Second Class Matter at the Rochelle, Ill. Postoffice under the act of March 3, 1879.

Copyright 1957 by Telephone Engineer Publishing Corp., Chicago, Ill.

Table of Contents

ARTICLES

Editorial — "60 Candles On The Cake" 31
Problems of Small Community Operations — J. W. Heckman 33
Planning Plant Practices — T. DeWitt Talmage 37
Outdoor Booths — John S. Reed 43

FEATURES

Coming Conventions 12
The Open Forum 18
Safety Corner 22
Industry Newsletter 24
People In The News 26
Washington Bureau Reports 28
Industry News Briefs 52
The Back of The Book — John G. Reynolds 78

DEPARTMENTS

Professional Cards 63
Buyers' Guide 64
New Products 64
Classified Advertising 66
Advertisers' Index 77

FRONT COVER

Eight plant technical centers are teaching Southwestern Bell men new skills, instructing them in new and improved techniques. Front cover photo shows HARRY HANS, Iola, Kans., wire chief and class instructor, assisting STEVE BURZINSKI, Parsons, and BOB BUSKIRK, Meade, installer repairmen with installation of carrier equipment in Topeka class.

IN THE NEXT ISSUE

The March 15 issue of TELEPHONE ENGINEER & MANAGEMENT will feature these helpful articles: (1) "Problems & Objectives of Traffic Department Operations"; (2) "How's Your Rating As A Boss?" by Ernest W. Fair; (3) "How To Select The Best Man For The Job" — and all regular TE&M features.

HYCON EASTERN, INC. *announces Staff Openings for Senior Telephone Engineers*

SWITCHING ENGINEERS

AN OUTSIDE PLANT ENGINEER

A PLANT EXTENSIONS ENGINEER

A RATE AND COST ENGINEER

These men will be members of the Hycon Eastern systems design team engaged in engineering complete commercial and military communications systems for installation throughout the free world.

The work requires experienced telephone engineers with a sufficiently thorough knowledge of the field of public communications to develop fundamental plans, to design technical and organizational systems, and to specify equipment appropriate to the needs of the nations to be served.

These positions offer rewards in terms of both salary and professional stature. The engineering planning and specification work will be done in the Boston area, based upon exploratory field studies in the region involved. Compensation for any work outside the United States will include a generous overseas differential.

We invite inquiries from highly qualified engineers whose telephone background gives them an awareness of the problems to be dealt with. We want men whose ability will reflect credit upon American know-how, and whose integrity will help strengthen the ties between the United States and its friends of the free world.

Please address your letters, including a brief résumé to:

H. W. Adams

HYCON EASTERN, INC.

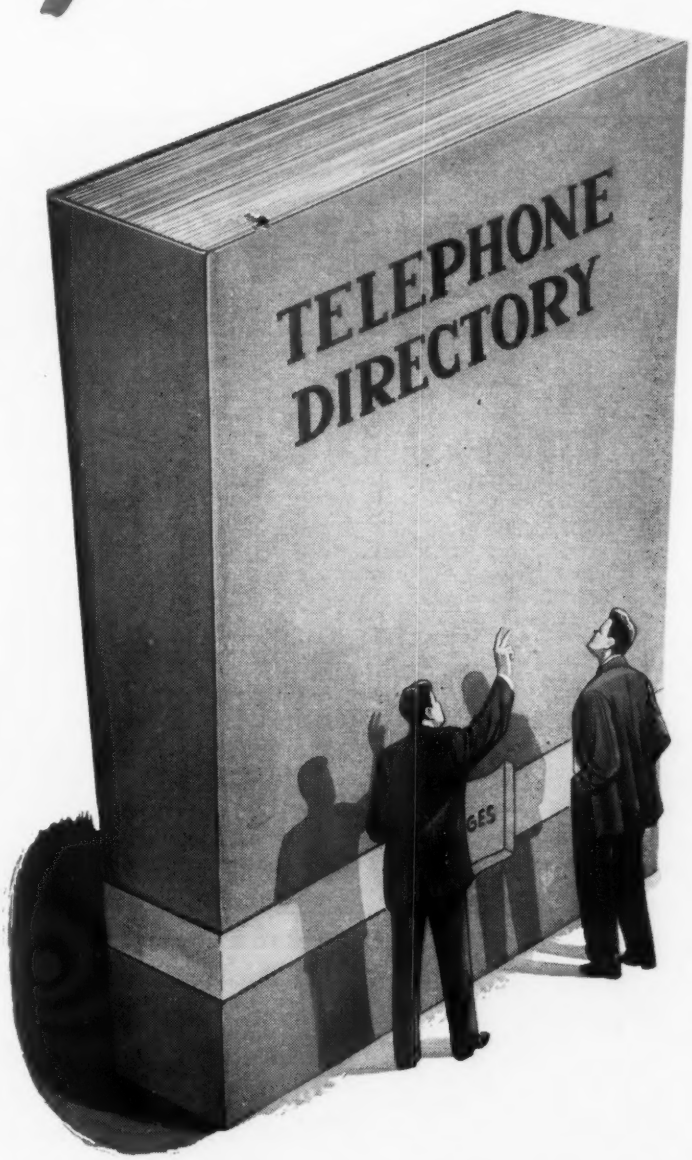
75 CAMBRIDGE PARKWAY *UNiversity 4-7200* *CAMBRIDGE 42, MASSACHUSETTS*

Affiliated with HYCON MANUFACTURING COMPANY of Pasadena, California

BERRY * DIRECTORIES GROW

YEAR after YEAR

in REVENUE and USAGE



* GROWTH in Berry Sold Directories has been achieved by securing the MAXIMUM REVENUE in every directory . . . while Maintaining the Best PUBLIC RELATIONS with Subscribers.

Without obligation send us a copy of your directory. We'll be glad to study it and tell you how much revenue it *should* be producing.

TELEPHONE DIRECTORY ADVERTISING EXCLUSIVELY

L. M. BERRY & CO.

GENERAL OFFICES • HULMAN BUILDING • DAYTON 2, OHIO • MICHIGAN 7421

BRANCH OFFICES • Birmingham, Alabama • Bristol, Chattanooga, Memphis and Nashville, Tennessee • Harrisburg, Pennsylvania • Jackson, Mississippi • Kansas City, Missouri • Louisville, Kentucky • Milwaukee, Wisconsin • New Orleans, Louisiana • Rochester, New York • Tampa, Florida • Warsaw, Indiana

if you want dial . . .

it's **KELLOGG** for

THE MOST COMPLETE L

CROSSBAR

Crossbar switching allows you maximum expansion . . . requires practically no routine maintenance . . . gives you high traffic capacity . . . has convenient drawer mounted switches which are easily accessible . . . allows PBX grouping service . . . is adaptable to inter-toll dialing.

STEP-BY-STEP

Step - by - Step switching gives you long life and low cost operation . . . is expandable for increased station and traffic requirements, allows trunking flexibility . . . is easy to check and adjust (each switch is a separate unit) . . . is compact and space-saving.

RELAYMATIC

Relaymatic all-relay switching is simple to install and easy to maintain . . . . operates with any type of trunk line . . . allows you up to 10 party selective divided ringing . . . has adaptors available for grounded rural lines.

TE LINE IN THE WORLD !

Your Kellogg representative is well qualified to help you choose the dial system that best fits your needs . . . only Kellogg offers a complete line of dial equipment to the independent telephone company.

For more detailed information on any of these systems ask your Kellogg representative.

7-A2 ROTARY

Rotary switching gives you the advantages of motor driven, register-type system . . . allows large trunk groups and is adaptable to inter-toll dialing.

PABX'S

For PABX's you have your choice of several types of switching: cross-bar . . . step-by-step . . . or relaymatic . . . in all sizes.

KELLOGG

A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

Sales Offices: 79 W. Monroe St., Chicago 3, Ill.

PHONE: DEarborn 2-0750

KELLOGG Branch Warehouses and Offices:

6000 W. 51st Street
Chicago 38, Illinois
REliance 5-5445

4501 Truman Road
Kansas City 1, Missouri
Humboldt 7085

410 N. Syndicate Avenue
St. Paul 4, Minnesota
Nestor 5878

1515 Turtle Creek Blvd.
Dallas 2, Texas
Riverside 7-5191

23 Broderick Road
Burlingame, California
OXford 7-5780

1555 West Fourth Street
Mansfield, Ohio
Mansfield 7-2816

1594 Southland Circle, N.W.
Atlanta, Georgia
Sycamore 4-2441

Export Distributor:
International Standard Electric Corp.
50 Church Street
New York 7, New York

People Are Funny!

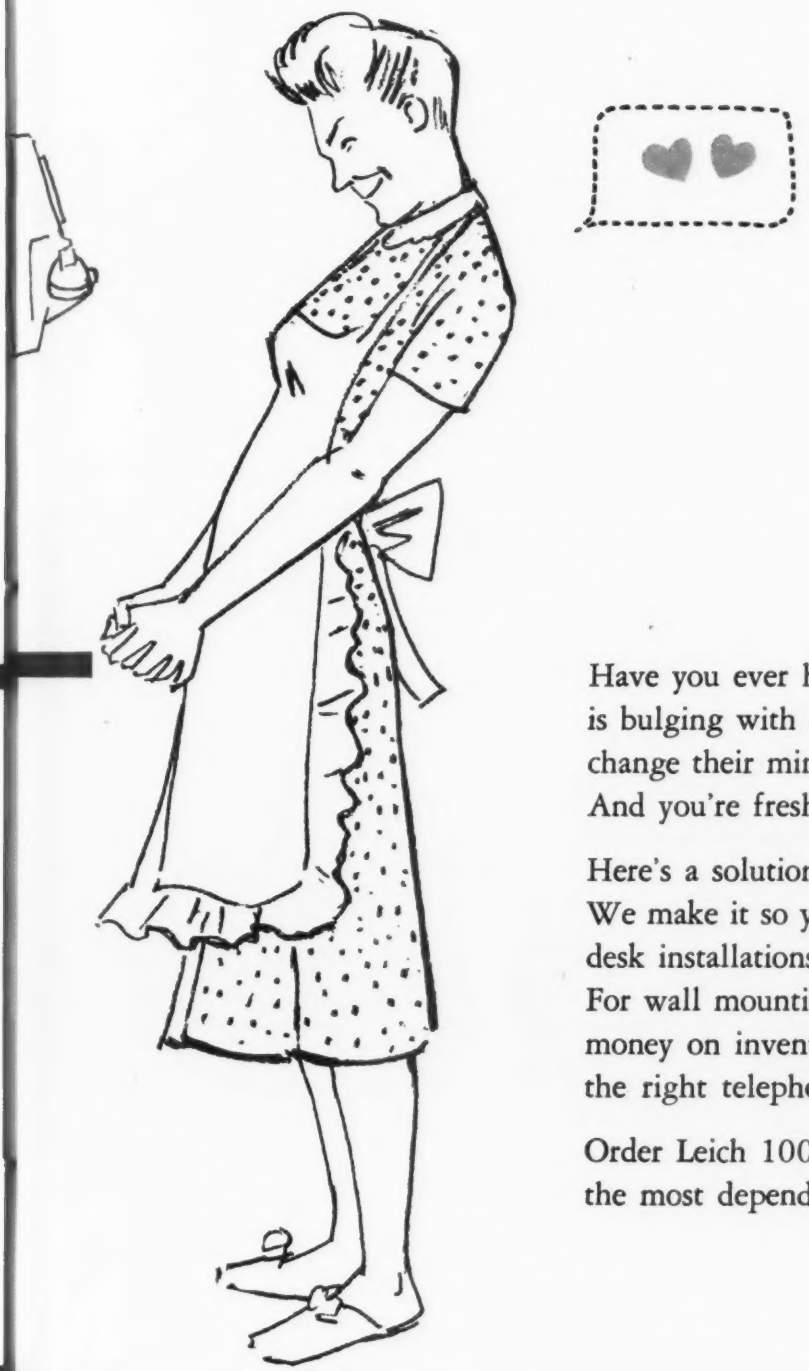
They D

THE SAME LEICH TELEPHONE SERVES FOR WALL OR DESK INSTALLATION.

LEIC

LEICH SALES CORPORATION, 427 WEST RANDOLPH STREET, CHICAGO 6, ILL

Change Their Minds About Wall And Desk Telephones



Have you ever had this problem? Your inventory is bulging with desk telephones. But suddenly people change their minds. They want wall installations. And you're fresh out of wall telephones.

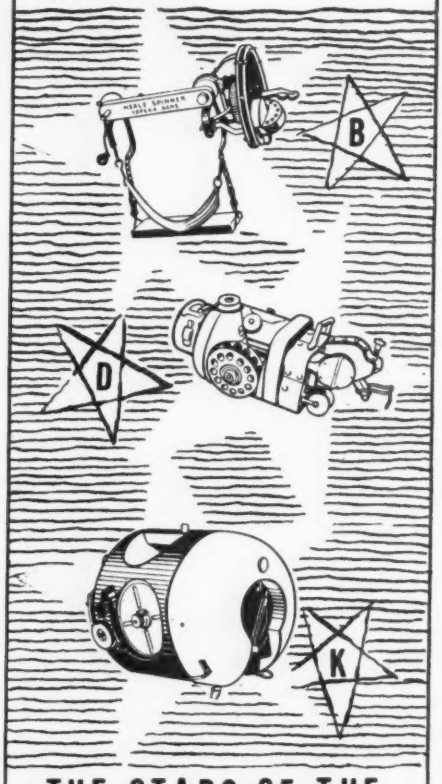
Here's a solution. Stock the Leich 100 telephone. We make it so you can use it, as is, for either wall or desk installations. For desk use, you set it down. For wall mounting, just turn it up and over. You save money on inventory and . . . every telephone is the right telephone.

Order Leich 100 telephones today. You'll find them the most dependable instruments you've ever used.

anufacturers of telephones, switchboards and related apparatus since 1907

PACIFIC COAST: 11401 WEST PICO BLVD., LOS ANGELES 64, CALIFORNIA SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS

NOT ALL THE STARS ARE ON TV.....



THE STARS OF THE SPINNING WORLD

CABLE SPINNING EQUIPMENT CO.

3100 TOPEKA AVE.

TOPEKA KANSAS

Serving the growing Independent telephone industry

UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

OVERSEAS SALES:

Ericsson Corp. of New York

Automatic Electric of Canada

Pirelli of Great Britain

COMING CONVENTIONS

KENTUCKY Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 5.

TEXAS Telephone Association, Gunter Hotel, San Antonio, Mar. 28-29.

IOWA Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 2-3.

NORTH DAKOTA Telephone Association, Gardner Hotel, Fargo, Apr. 8-9.

OHIO Independent Telephone Association, Deshler Hilton Hotel, Columbus, Apr. 16-17.

NEBRASKA Telephone Association, Hotel Cornhusker, Lincoln, Apr. 23-24.

INDIANA Telephone Association, Claypool Hotel, Indianapolis, May 8-9.

WISCONSIN State Telephone Association, Hotel Loraine, May 15-16.

ILLINOIS Telephone Association, Hotel Pere Marquette, Peoria, May 22-23.

KANSAS Telephone Association and MISSOURI Telephone Association, Town House Hotel, Kansas City, Kans., May 27-28.

PENNSYLVANIA Independent Telephone Association, Buck Hill Falls Inn, Buck Hill Falls, June 4-5.

MAINE Telephone Association, NEW HAMPSHIRE Telephone Association, and VERMONT Telephone Association, Wentworth-by-the-Sea Hotel, Portsmouth, N. H., June 4-6.

CALIFORNIA Independent Telephone Association, Ambassador Hotel, Los Angeles, June 5-6-7.

WASHINGTON Independent Telephone Association, and OREGON Independent Telephone Association, Davenport Hotel, Spokane, Wash., June 13-14-15.

NEW YORK State Telephone Association, Scaroon Manor, Schroon Lake, June 17-19.

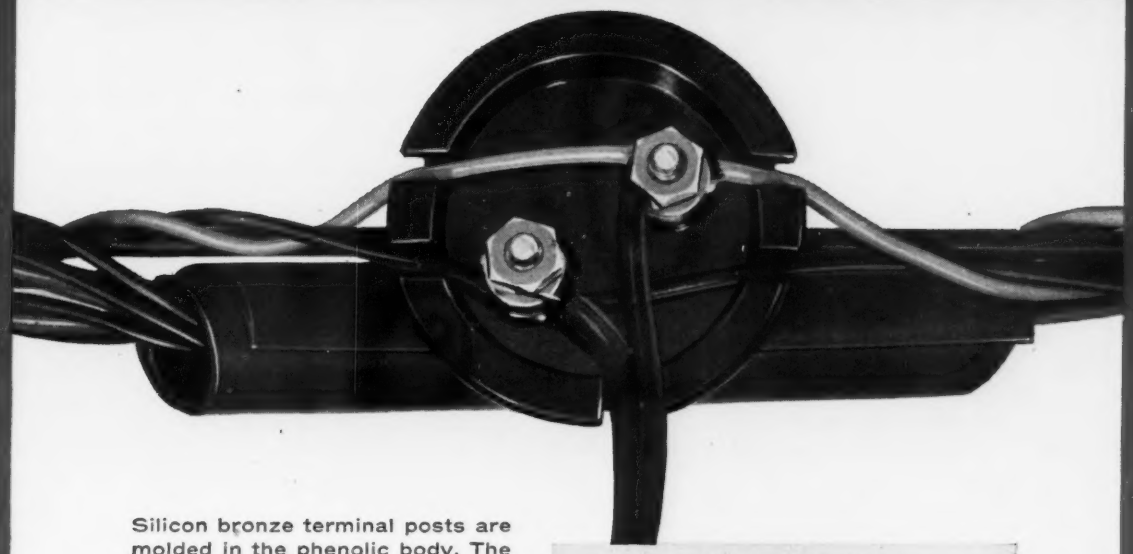
ARKANSAS Telephone Association, Arlington Hotel, Hot Springs, Sept. 16-17.

MICHIGAN Independent Telephone Association, Hotel Pantlind, Grand Rapids, Sept. 17-19.

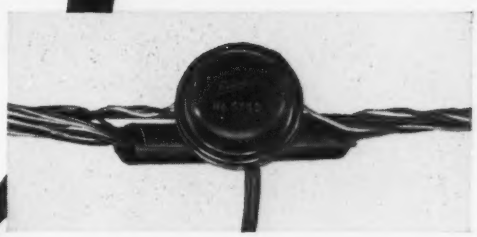
ROCKY MOUNTAIN Telephone Association, Hotel Utah, Salt Lake City, Sept. 19-20.

NORTH CAROLINA Independent Telephone Association, Carolina Hotel, Pinehurst, Oct. 3-4.

UNITED STATES Independent Telephone Association, Conrad Hilton Hotel, Chicago, Oct. 14-16.



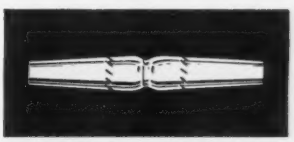
Silicon bronze terminal posts are molded in the phenolic body. The clamp to the support wire is stainless steel and the flexible snap-on cover is long-life Neoprene.



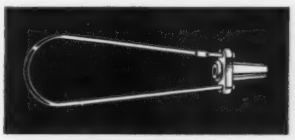
SIMPLICITY–TIMES THREE

1. *Connect drop wire to RD conductors without cutting conductors.* **2.** *Splice the .109 steel support wire.* **3.** *Deadend, or terminate, the steel support wire.*

The Number 5500 single pair terminal takes care of ONE. The automatic type Wirelink takes care of TWO and its companion, Wirevise, handles number THREE. All three jobs are easy, fast and permanent since Reliable has contributed engineering experience to three of the principal problems presented by type RD Telephone Wire.



Wirelink—the automatic type tension splice with 20 years experience built-in, splices securely in a matter of seconds.



Wirevise—a fast and sure automatic type deadend. The support wire is fed through to desired sag and is held permanently.

Reliable

RELIABLE ELECTRIC COMPANY CHICAGO

Without extending your
with NORTH
Available in Canada through Ericsson Telephone Sales of Canada, Ltd., Montreal 8, P. Q.

...physical lines...

you can extend your service

THow cost SUBSCRIBER CARRIER

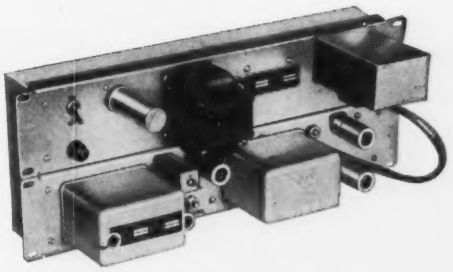
Service to the community has always been the keynote of the telephone industry. Yet today many Independent Companies, anxious to meet the ever increasing pressures for extended service, are faced with the problem of heavy expense incident to the construction of physical lines.

North Low Cost Subscriber Carrier has been specifically engineered and built to overcome this obstacle.

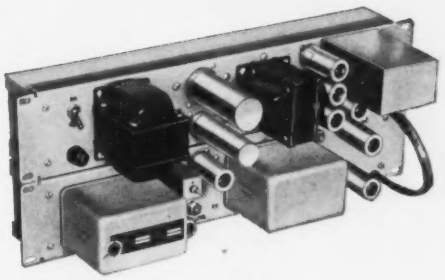
With North Subscriber Carrier you can:

Provide service for waiting list customers adjacent to lines now filled to capacity; reach potential customers beyond the end of present lines; provide private, two-party, or four-party lines not now available, with improved rate earnings; free physical circuits for pay stations and other special revenue services; meet demands for special temporary service, where carrier can be moved to meet changing requirements; and offer improved service to customers now on overcrowded lines!

Let your NORTH representative show you how NORTH Subscriber Carrier can do all this for you at a substantial saving over physical line construction.



CENTRAL OFFICE TERMINAL



DISTANT TERMINAL

NORTH ELECTRIC COMPANY

675 SOUTH MARKET STREET • GALION, OHIO

interested in growth

Look how toll revenue is growing!

Like the little guy in short pants who suddenly towers over you and wants to know if he can use the car tonight, toll revenue by Independents has grown so big so fast it's almost unbelievable.

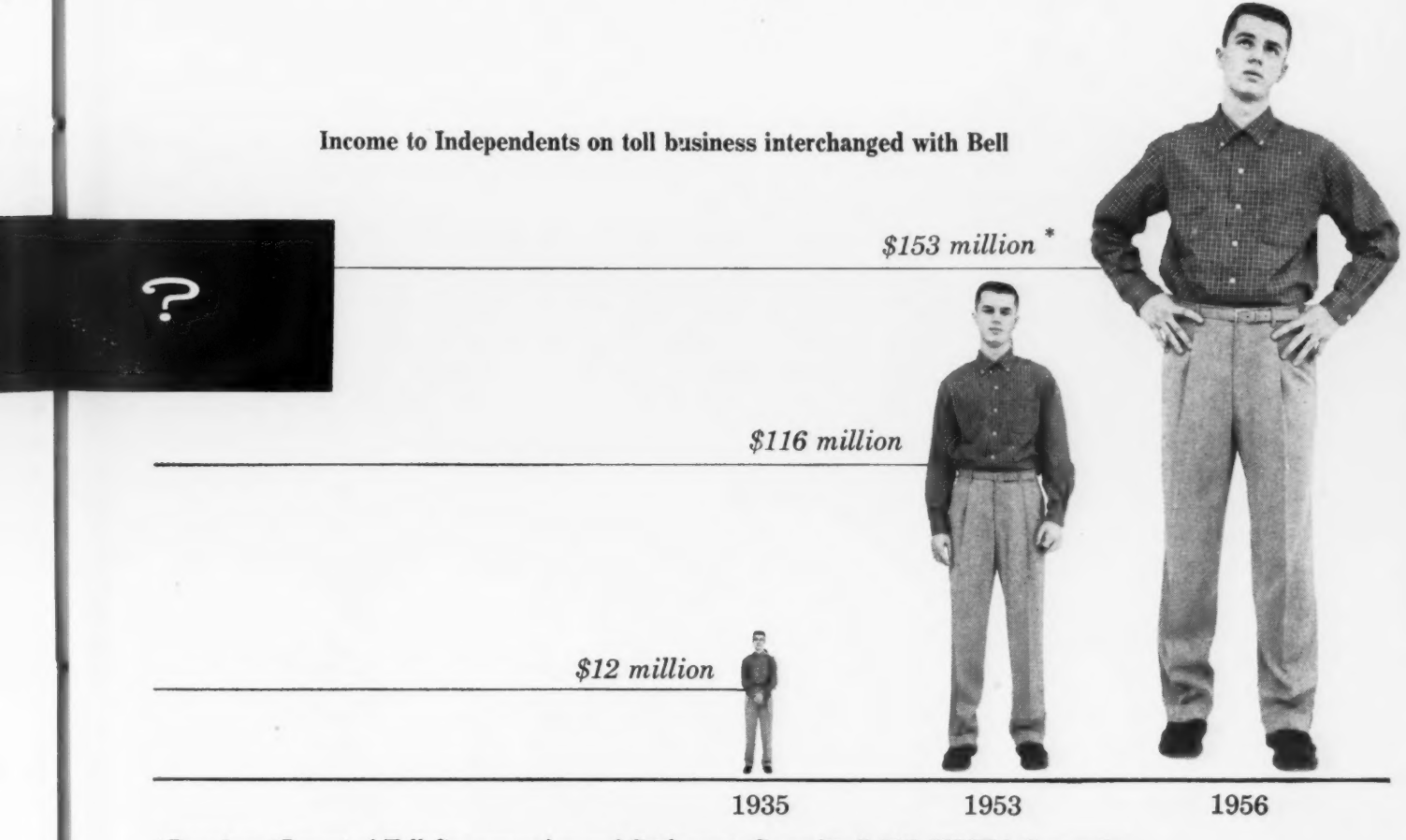
QUESTION: *Are you getting your full share of this mounting pile of toll dollars?*

If not, a suggestion . . . let Automatic Electric's carrier and radio engineers help you now in developing your toll circuits, TWX installations, telemetering and other special services that build toll revenue. Our specialists are ready and eager to go to work for you.

Just drop us a line today.

Automatic Electric Sales Corporation,
1033 West Van Buren Street,
Chicago 7, Illinois.

IN CANADA Automatic Electric Sales (Canada) Ltd.,
Toronto, Ontario.
Offices in principal cities.



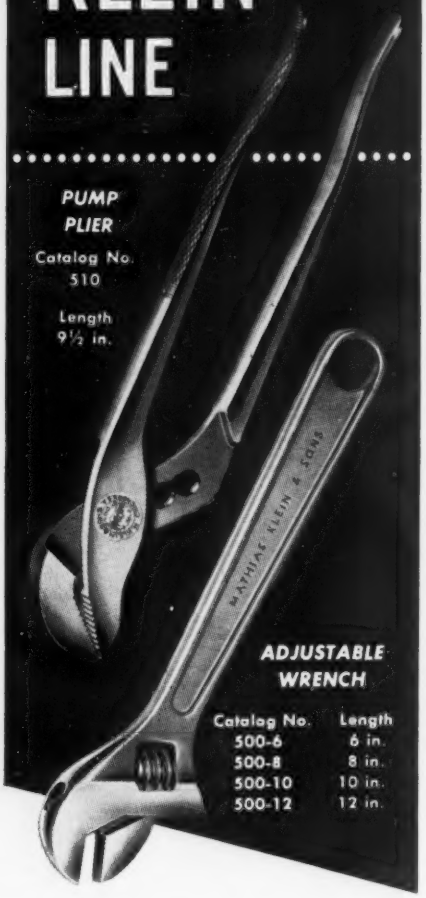
**Based on "Report of Toll Compensation and Settlements Committee" 59th USITA Convention.*

AUTOMATIC ELECTRIC

Originators of the dial telephone • Pioneers in automatic control

GENERAL SYSTEM INDEPENDENT

2 NEW PRODUCTS in the KLEIN LINE



These new high-quality tools have been added to the Klein line.

A Pump Plier that gives easy one-hand operation and a firm grip in any of four positions.

And the new Klein Adjustable Wrenches of drop-forged alloy steel, light in weight, chrome plated for lasting protection and service.

Write for Bulletin

Bulletin No. 1157 on these two Klein tools is now available. Send for your copy.

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

"Basic Electronics"

TO THE EDITORS: — "Could you help me get the book on "*Basic Electronics*" . . . . this is a 524 page book by Van Volkenburgh of Nooger and Neville, Inc. Thank you . . . ."

Maurice R. Ferden,
McIntosh, Minn.

Editor's Note: — To the many readers who have requested information on "Basic Electronics," we suggest that they write the managing editor of this magazine for complete price and ordering information.

Story From Colorado

TO THE EDITORS: — . . . . "The photograph of my little girl, Evelyn, using a dial telephone from her horse prompts me to write you about our little company. Perhaps the picture might amuse some of your readers.

"In short, we are a Bell System affiliate or service station company. We own and maintain our lines. Our switching center is at Clark, Colo., about 20 miles north of Steamboat Springs high up in the Rockies. For many years our 6 party lines were switched mainly at Clark on a hit or miss basis. After much prodding we convinced Mountain States Tel. & Tel. to put in one of its newly developed small dial units which they did last December. It was necessary for us, ranchers for the most part, to convert our old single wire to ground system to a reliable two-wire system throughout. This we did during the winter during our free time working on skiis over the most rugged type of country. Some of us even learned to climb poles with skiis on.

"We now serve 28 subscribers. The dial unit has worked extremely well, giving our customers around the clock service, something they never had before.

"The installation in the picture was made at the location of a new saw mill before their office was built and that is why it was accessible from horseback."

John R. Fetcher,
Clark Telephone Co.,
Clark, Colo.

"Permission Granted"

TO THE EDITORS: — " . . . . I represent John Withy and Associates, publishers of THE FABRICATOR for St. Paul Structural Steel. The monthly publication goes to upwards of 4,000 contractors, architects, engineers and steel buyers throughout Minnesota and the Dakotas, and parts of Wisconsin and Michigan.

We are requesting your permission for the use of art work which appeared on page 8 of your January 1 edition of *Telephone Engineer and*

EVELYN FLETCHER, aboard her horse, makes a telephone call.

UNIQUE COPPERPLY® WIRE . . . *unique advantages!*

• National-Standard Copperply is unique because its heavy copper jacket is bonded to a steel wire core by a continuous *electroplating* process. This results in precise concentricity and permits closely controlled coating thickness. It also permits the use of core steels in a wide range of analyses.

The coating is so uniform and the bond so permanent that Copperply can be twisted, bent, flattened, stranded, woven or even roll-threaded without the slightest danger of rupturing the coating or otherwise exposing the core. Thus Copperply's extreme uniformity and permanence mean prolonged service life and maximum protection against rust, regardless of forming or service requirements.

The uses for this unique new wire are many. They range from high strength communications line and electronic applications to wire for non-rust masonry ties and decorative jewelry chain—*wherever* the combined qualities of copper and steel can work to advantage.

Name the use you have in mind and let National-Standard help you work out details. It's part of our unusual service.

NATIONAL NS NATIONAL-STANDARD Company **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *tire wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *high and low carbon specialty wires* WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • ATHENIA STEEL, Clifton, N. J.; *flat, high carbon spring steels* • REYNOLDS WIRE, Dixon, Ill.; *industrial wire cloth*

NOW

A TELEPHONE SERVICE BODY . . .

at LOWER COST!

WITH EVERY QUALITY FEATURE FOR CONVENIENCE AND LONG SERVICE LIFE

It's true; Stahl TMI-76 Telephone Service Bodies have the extra costs engineered OUT. Here is a body that has all the space you want, a body that is reinforced at EVERY point of strain, precision welded of auto body steel, yet COSTS YOU LESS!

Available with Ladder Racks and Rear Bumpers, in prime finish or painted to your order.

MADE BY STAHL . . . BUILDER OF QUALITY SERVICE BODIES . . . mounted on your chassis at our plant, or crated and shipped to you at new low shipping cost.

Write for descriptive literature and complete specifications.

TMI-76 . . . FIRST TOP QUALITY TELEPHONE SERVICE BODY AT A PRICE!

STAHL
METAL PRODUCTS, INC.

"Open Forum"

(Concluded from page 20)

Management, bearing the overline, "Balance of Power!" We would like to reproduce the cartoon in a forthcoming issue of THE FABRICATOR, in as much as St. Paul Structural Steel sponsors a scholarship program for prospective scientists and engineers . . . .

Robert J. Tritz,
John Withy and Assocs.,
290 Endicott-On-Robert
St. Paul 1, Minn.

"Glad You Like TE&M"

TO THE EDITOR: — " . . . In perusing my January 15, 1957 copy of the *Telephone Engineer and Management* magazine I ran across two articles that immediately aroused my interest. One article was on page 45 — "Profits and Service Through Better Management," by James L. Morrison, and the other one appears on page 41 and is titled "Pre-Wired Homes."

In regard to the first article, "Profits and Service Through Better Management," it would be appreciated if you could forward me ten copies of this particular article. Please bill same to Winter Park Telephone Company.

As for the second article, "Pre-Wired Homes," being very interested in this subject, I would appreciate very much if you could inform me as to where and to whom I may write for more information as to their procedure.

I would also like to state at this time that I find your magazine a most useful one. The articles are good and the information most helpful."

R. P. Hulbert,
Winter Park, Fla.

"Its On The Way"

TO THE EDITORS: — "We would appreciate receiving a free copy of your December, 1956 issue of Tele phone Engineer. We have had several requests for our telephone report which the writer's report was published in your magazine. Thank you."

Laurence J. O'Toole,
Director,
Bureau of Municipal Research
215 City Hall,
Syracuse, New York

FREE LITERATURE

This feature of "Telephone Engineer and Management" helps you get up-to-date technical bulletins, catalogs and literature. To obtain your copies write Reader's Service Department, 7720 N. Sheridan Rd., Chicago 26, Ill.

Industrial Equipment

A 24-PAGE, illustrated handbook containing detailed specifications and complete descriptive data on a full line of office and factory equipment has been published by General Industrial Co. Featured in this handbook are such items as shelf trucks, lockers, small parts cabinets, hand dryers, fireproof blueprint cabinets and glass door display cases.

Industrial TV

NEW 8-PAGE descriptive brochure has been issued covering Philco's newly designed line of Industrial Television equipment. The booklet contains many illustrations of the latest developments in cameras, monitors, controls, lenses, and other accessories that are required to create any kind of camera chain. Included in the new line are cameras with full remote control for adjustment of focus and iris apertures and for both high and low speed tilt and pan. Also listed are special weatherproof and explosion resistant housings as well as various lenses and turret heads.

Minature Voltmeters

INTERNATIONAL Instruments, Inc., New Haven, Conn., has announced publication of a new Engineering Data Sheet covering its line of miniature, expanded scale A-C voltmeters. Combining small size and light weight with high accuracy, these meters provide precise readings of voltages at critical points on the scale.

Standard ranges are 90-120, 90-130 and 90-140 a-c volts. Other ranges with the lowest starting at 80 a-c volts can also be supplied; minimum scale is 30 a-c volts. Accuracy on all meters is held to ± 5% of the expanded portion of the scale.

The new data sheet covers all information pertinent to the expanded scale feature of this meter line. Supplementary information such as mounting dimensions, case descriptions, standard and special resistances etc. is contained in additional data sheets covering each specific model.

Pole Line Hardware

THE POLE HARDWARE Division of Malleable Iron Fittings Co., Dept. TE&M, Branford, Conn., has issued a new 24-page illustrated price list PH 8-56 on its complete line of pole line hardware for power companies and railroads.

Poles, Electrical Resistance

BOOKLET from United States Steel Corp., titled "Electrical Resistance of Wood Poles," appraises the dielectric characteristics of wood used for poles and crossarms and summarizes many of the significant factors related particularly to Southern Yellow Pine Poles and their treatment by the pressure-creosoting process.

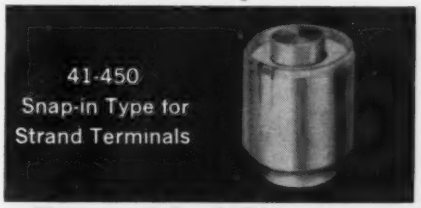
Poles, Field Treatment

UNITED STATES STEEL CORP., has released a report on "Practices In the Supplemental Field Treatment of Poles." Report is designed to provide useful data on the supplemental groundline treatment of wood poles in service.

Advertisement

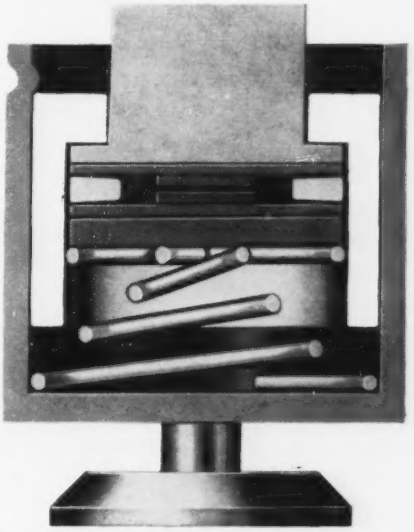
We Don't Think It's Necessary

IN the design and manufacture of the new Mytigap arresters, however the replacement of parts and reassembly in the field by operating company maintenance and repair crews has been incorporated.



The use of Spark Plug characteristics in the design of this arrester provides a durability and reliability which in our opinon obviates the necessity of replacement and reassembly of the Mytigap. You don't reassemble your spark plug with replacement parts.

Nevertheless in the interest of further economy and for competitive reasons, the come apart feature together with capsulated subassemblies has been provided for.



Sectional View of the 41-450 Assembled Mytigap Arrester for Stranterm Protection.

So, for the first time a lightning, surge or power cross arrester all in one, with self-restoring operation after functioning, for Cook Stranterm, PLX and RDX cable terminals is now available. An arrester with spark plug electrodes, — Ceramic insulation like your automobile spark plug — made of Cecotite, (a Zirconeum base ceramic made exclusively by Cook Electric Company) and replacement parts which can be individually field serviced and reassembled will introduce further protection economies.

For literature, samples, and additional information contact your nearest distributor or telephone supply salesman.

Mr. Manufacturer -

this 310 page book

what the telephone industry buys

will open your eyes

to the tremendous market potential awaiting you in the $17 billion telephone industry . . . whether you manufacture autos, tools, trucks, office machines, etc.

TELEPHONE ENGINEER'S Annual Catalog - Directory "Where Sellers and Buyers Meet"

If you wish to participate in the country's fastest growing market this directory shows all of the many hundreds of items used in a telephone plant—plus the manufacturers and suppliers serving the industry.

All items are alphabetically listed . . . ranging from acetylene torches, adding machines and augers, through typewriters, wires and wrenches. Just looking over these items will give you the insight you need preparatory to going after your share of this huge pie—$1½ billion worth of materials, supplies, etc., purchased each year by telephone companies.

write for a FREE COPY of the current (1956) issue

CIRCULATION to telephone industry 12,000 copies

More than double the circulation of competing directory.

The 1957 edition is now being compiled.

Order Space Needs Today

TELEPHONE ENGINEER Publishing Corporation

Publishers of Telephone Engineer & Management

Phone ROgers Park 4-3040

7720 Sheridan Road • Chicago 26, Ill.

SAFETY CORNER

"Safe Motor Vehicle Operation"

(Part One of this article appeared in the February 15 issue.)

(F) *Accidents Due to Mechanical Condition.* It is the responsibility of the defensive driver to observe his vehicle's mechanical condition and to report promptly for repairs, any faults. There is very little reason for accidents due to mechanical failure in this company.

(G) *Accidents with Trains.* Trains always have the right-of-way. Any accident with a train is preventable. Defensive drivers depend on their eyes and ears, not completely on gates or automatic signal devices at grade crossings. They do not take chances in rushing past the end of a passing train until they are sure there is not another train coming on another track.

(H) *Collisions with Stationary Objects.* Scraping curbs, poles, signs, trees, etc. indicates "sloppy" driving. Stationary objects do not run into vehicles. Expert drivers do not depend on their skills to get them out of tight spots. They depend on their judgment to avoid tight spots. It is the driver's responsibility to be sure his vehicle is safely and securely parked when he leaves it unattended.

(I) *Accidents Blamed On Adverse Weather Conditions.* Rain, snow, fog, etc. never cause accidents . . . . They add to the hazards of driving. Accidents are caused by drivers who do not adjust their driving to meet these conditions. Road surfaces and under other adverse conditions by substantially reducing speed.

Safe driving requires much more than just skill in manipulating the vehicle controls. It requires the proper frame of mind — The proper attitude. Defensive driving will help prevent accidents because it is the type of driving that will keep you out of tight situations. A defensive driver, in brief, is one who:

(1) *Makes allowances for the lack of skill* and lack of knowledge on the part of the other fellow.

(2) *Recognizes that he has no control over the unpredictable actions* of other drivers and pedestrians nor over conditions of weather and road.

(3) *Concedes the right of way* and makes the necessary concessions, too, in order to avoid collisions and accidents.

(4) *Is careful to create* no driving hazards himself.

(5) *Is alert to avoid accident traps* and hazards involving weather, road, pedestrians, and other drivers.

(J) *What you are thinking and how you feel* at the moment has a bearing on the quality of your driving. Whether you are rested or fatigued, well or ill, happy or sad, will be reflected in your driving.

(K) *As drivers, we must be alert* so that we are not caught at the last instant in a futile attempt to avoid an accident. Alertness involves looking far enough ahead to recognize hazardous combinations of streets, vehicles and pedestrians and thus avoid running into an impending accident situation.

—To be concluded in the March 15 issue.

BUCKEYE Carries Quantities of SUPERIOR Telephone Cable in Stock for IMMEDIATE SHIPMENTS to Aid in Your Spring Construction Programs

All-plastic SUPERIOR Cable is irradiated*, has double the dielectric strength for greater lightning protection! Resistance to moisture, ozone, oils, acids and alkalis makes it ideal for either aerial or direct burial installations! Insulation "graded" to conductor sizes, closely match universal transmission standards for loading coils and terminating equipment! Deviation in mutual capacitance less than 1½%! Accepted by REA and conforms to REA Spec. PE 14.

Available with regular spiral shield (5 mil alum.) or, in certain sizes at slight additional cost, longitudinal shield (8 mil alum.)

designed for Superior Performance with Minimum Maintenance

CONTAINS A NEW POLYETHYLENE TAPE* DEVELOPED BY RADIATION CHEMISTRY

*Irrathene® irradiated polyethylene film, a General Electric product.

IT'S IRRADIATED!

SUPERIOR TELEPHONE CABLE

Whatever Your Needs . . . . It Pays to Call on Butelco

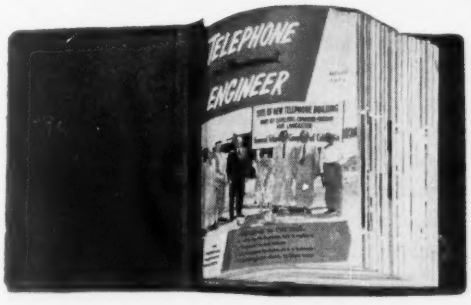
Buckeye Telephone & Supply Co.

P. O. Box 5707 Phone HU 8-0655 Columbus 21, Ohio

Now you can preserve and protect your

TELEPHONE ENGINEER MAGAZINES

with this sturdy, full-sized BINDER



HOLDS ALL ISSUES FOR A FULL YEAR

$4 each

Bind your copies for QUICK reference in this handsome, durable binder. Each magazine easily inserted.

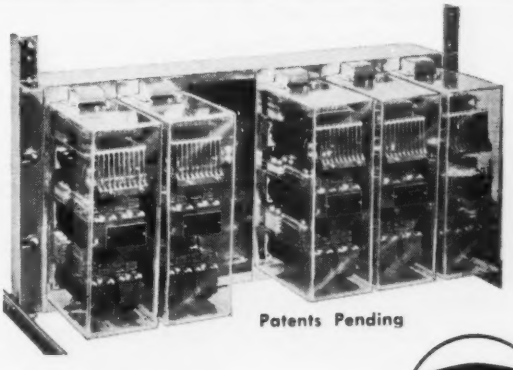
TELEPHONE ENGINEER PUBLISHING Co.
7720 Sheridan Road,
Chicago 26, Illinois ....., 1957

Gentlemen: I am enclosing $ covering binders @ $4.00 each postpaid

Name .....

Company .....

Address .....



Patents Pending

INDEPENDENT

- **CODE-TO-SELECTIVE CONVERTERS**

Provides 10-party selective ringing. Use with present equipment.

Ask for Bulletin No. 554

- **DIGIT ABSORBERS**

For converting switchboards into full 2-5 numbering.

Ask for Bulletin No. 555

UNIVERSAL CONTROLS CORPORATION

P. O. Box #13122, Walnut Hill Sta., DALLAS 20, TEXAS

So. Bell Collects From CWA

THE COMMUNICATIONS Workers of America Union (CWA) has paid Southern Bell Tel. & Tel. Co. $315,000 for physical damage inflicted on the company's facilities during the 1955 strike. Payment by the Union was the outgrowth of a damage suit filed in 1955 by the company. An agreement to this effect was reached by company and CWA attorneys, Southern Bell officials announced February 7.

In the suit filed May 31, 1955, in the Davidson County Tenn., (Nashville) Circuit Court, Southern Bell charged the Union with "a pattern of violence" designed to destroy telephone facilities and interfere with communication service to the public in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee.

The suit, seeking $5,000,000 for punitive as well as actual damages, alleged that the Union, its members and others joined an "unlawful combination and conspiracy" to damage property. The suit said the Union "embarked on a program of wanton, willful and malicious misconduct and property damage," including the use of dynamite, fire arms and cable cuttings.

In a separate action growing out of strike violence, the CWA recently agreed to accept without further hearings an order by the National Labor Relations Board against the International Union and 27 of its Locals for unfair labor practices during the 1955 strike. Subsequently, the NLRB issued such an order (on January 28, 1957.)

The damage suit was consummated when an order dismissing the case was entered in Davidson County Circuit Court following agreement between the parties.

Recent REA Loans

LOAN APPROVALS reported recently by REA's Telephone Division included the following: (1) South Central Tel. Co-op. Corp., Glasgow, Kentucky; $317,000, third loan. Co-op has received REA loans totaling $2,790,000, and now has 12 dial exchanges in operation serving around 3,500 rural subscribers in Allen, Barren, Green, Hart, Larue, Metcalfe and Monroe counties. The completed system will serve 5,600 subscribers over 1,366 miles of line. It will consist of 14 exchanges. Robert E. Eaton is pres. and Daniel B. Corman is manager of the South Central Rural Telephone Cooperative Corp.

Mid-Texas Telephone Co., 731 N. St. Mary's Street, San Antonio, Texas; $140,000, second loan. The two REA loans to Mid-State, totaling $1,990,000, will enable it to provide new and improved service to 7,832 subscribers in Bell, Coryell and Lampasas counties. The completed system will consist of 473 miles of line and dial exchanges at Holland, Killeen, Cooperas Cove and Nolanville. The latter two are in operation serving approximately 600 subscribers in those communities. W. S. Bain is president and manager of the Mid-Texas Telephone Co.

Batesville Tel. Corp., Batesville, Ind.; $1,140,000, first loan, to improve and extend rural telephone service in Decatur, Franklin and Ripley counties. Borrower plans to use loan funds primarily to furnish improved service for 1,719 existing subscribers and initial service for 210 families now without telephones in its Batesville exchange area. The existing subscribers include 118 families who now own their own lines and receive switching service from the adjacent Morris Telephone Co. whose facilities the Batesville corporation plans to acquire. W. J. Scheidler is pres. and C. R. Gannon is manager of Batesville Tel. Corp.

Pioneer Tel. Co-op, Kingfisher, Okla.; $137,000, fourth loan. The four REA loans to Pioneer total $1,193,000 and will enable it to provide modern dial service to 2,371 rural subscribers. The system will consist of 992 miles of line in Blaine, Canadian, Custer, Dewey, Garfield, Kingfisher and Major counties. Of the proposed nine exchange areas, Fay, Geary, Loyal and Oakwood are now in operation. The remaining exchanges will be located at Ames, Calumet, Cleo Springs, Omega and Drummond. T. W. Bailand is pres. and Roy C. Boecher is manager of the Pioneer cooperative.

Polar Rural Tel. Mutual Aid Corp., Petersburg, (temporary mailing address: Grafton, N. D.); $1,094,000, second loan. Borrower plans to use the new loan together with the first loan of $2,309,000, approved in October, 1953, to provide telephone service for the first time to 1,809 subscribers, and improved service for 3,413 subscribers in its operating area. The system will consist of 2,170 miles of line in Cass, Grand Forks, Nelson, Pembina, Traill, and Walsh counties in North Dakota, and small portions of Kittson and Marshall counties in Minnesota. The 18 dial exchanges will be located at: Arthur, Bathgate, Bowesmont, Cavalier, Crystal, Dahlen, Drayton, Edinburg, Galesburg, Heche, Hopple, Hunter, Inkster, Michigan, Niagara, Park River, Petersburg and St. Thomas. In addition to pro-

perties acquired in connection with the first REA loan, the borrower has acquired or plans to acquire the following telephone facilities: Ryan at Inkster; Dahlen Tel. Co. at Dahlen; Edinburg-Gardar Tel. Co. at Edinburg; Galesburg exchange of the Traill County Tel. Co. at Hillsboro; and two small switcher lines in the vicinity of St. Thomas. All of these telephone properties are now furnishing magneto service. Mr. Irvin M. Hanson is president and John G. Walters is manager of the Polar Rural Tel. Mutual Aid Corp.

Expansions & Improvements

CONVERSION of Stanton, Mich. exchange to dial service will be completed this summer, James Dudewicz, Mt. Pleasant district manager of Union Tel. Co., said cost of conversion will approximate $180,000 . . . Foundations have been laid for seven dial central office buildings being built by Delbert Sickall, Clarence Mo., for Mark Twain Rural Tel. Co., Bethel, Mo. Plants are for towns of Leonard, Novelty, Bethel, Baring, Knox City, Hurdland and Brashear . . . All board members of Millstadt (Ill.) Tel. Co., were re-elected at annual meeting of stockholders. Stockholders also approved recommendation of board to negotiate $125,000 loan to refinance outstanding obligations and provide capital for further extension and improvement of lines . . . Stockholders of Onsted (Mich.) Tel. Assoc., voted to convert Onsted exchange to dial. Owen Dunn, president, said new system will be in operation in 1958.

New Owners

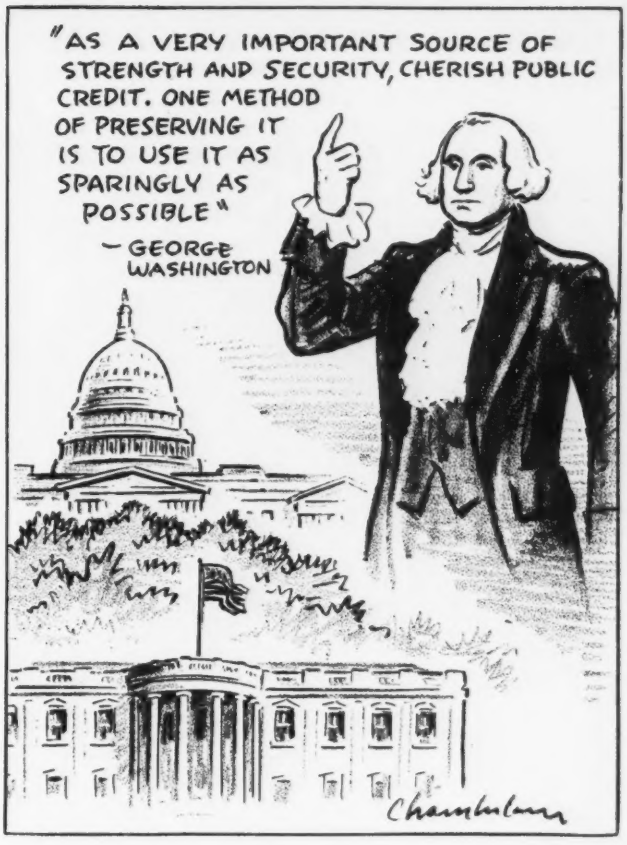
ALLIED Tel. Co., Little Rock, Ark., purchased Home Tel. Co., Fordyce, Ark. Home Telephone operated exchanges at Fordyce, Bearden and Sparkman, which served New Edinburg, Thornton and Holly Springs. It owned its own toll line from Sparkman to Arkadelphia . . . Westside Tel. Co., has been purchased by officials of Manning (Ia.) Tel. Co. Eugene Zerwas, Manning manager, purchased firm with his brothers, LeRoy and Francis Zerwas. $45,500 to $50,000 modernization program is planned . . . Colorado Public Utilities Commission authorized Independent Tel. Co., Seibert, and Vona-Joes Tel. Co., Vona, to transfer assets and operating rights to Plains Co-op. Tel. Assoc., Inc., Ashton.

Highlights

THE COMMERCIAL office of the Progressive Rural Tel. Cooperative will be located at Dexter, Ga. The building will house the administrative offices of the co-op. President C. J. Burch announced the co-operative will serve citizens in parts of Laurens, Bleckley, and Dodge Counties . . . W. R. Bryan has been named manager of Port Byron (Ill.) Tel. Co. Mr. Bryan was manager of the Rochelle, Ill. exchange of the DeKalb-Ogle Tel. Co. . . . J. L. Mikesell, for the past 11 years manager of the Glidden office of the Central Iowa Telephone Co., retired recently. He had been with the company for 34 years.

Kansas Corporation Commission said last month, complaints of "insufficient and inadequate service" by the Palco (Kans.) Tel. Co., have been dropped with the announcement that the exchange has been sold to Rural Tel. Service Co., Inc., Lenora . . . The North Dakota Public Service Commission has approved the sale by J. I. Shepard of telephone exchange property at Munich to the United Tel. Mutual Aid Corp. of Langdon . . . The Andrew, Ia. switchboard, telephone lines and equipment belonging to the late J. H. Mohlenhoff in Andrew have been sold to Wilson Cornelius.

A BIRTHDAY MESSAGE


"AS A VERY IMPORTANT SOURCE OF STRENGTH AND SECURITY, CHERISH PUBLIC CREDIT. ONE METHOD OF PRESERVING IT IS TO USE IT AS SPARINGLY AS POSSIBLE"
— GEORGE WASHINGTON
Chamberlain

Worth Writing For

WRITE Robert C. Myers, Director of Market Development, United States Steel Corp., 525 William Penn Place (Dept. TE&M), Pittsburgh 30, Pa., for your free copies of the two valuable reference booklets: (1) "Electrical Resistance of Wood Poles," and (2) "Practices In The Supplemental Field Treatment of Poles." Each booklet is crammed with helpful information . . . . Write Publication Service, American Management Association, 1515 Broadway (Dept. TEM), New York 36, N. Y., for free copy of the 1956-57 edition of the AMA Bookshelf, a complete reference guide to helpful books that shape management performance, principles and practices.

Proceedings of the automation conference, titled "Automation — A Conference for Executives," held Feb. 14-15, 1956, in Chicago, are now available. Orders for the illustrated, 116-page book should be accompanied by check or money order for $4.50 and addressed to the attention of MF:AU1, Armour Research Foundation of Illinois Institute of Technology, 10 W. 35th St., Chicago 16, Ill.

PEOPLE IN THE NEWS

"Honorary Employe"

CHUNG DOH KIL, of Seoul, Korea, has joined The Elyria (Ohio) Telephone Co., as an honorary employe. He is in the United States to spend a year under the auspices of the International Co-operative administration. He will study communications work in all its phases and expects to spend six months or more in Elyria. He is a graduate of Seoul Engineering College. With his engineering background, augmented by the technical communications knowledge secured in the United States, he will return to Korea to take a post under the ministry of communications and use his new know-how toward the improvement and expansion of the Korean telephone system.

Robert J. White Joins General of Southeast

ROBERT J. WHITE has been appointed industrial relations director of the Southeastern group of General Telephone System companies, effective February 16, 1957, it was announced by General Telephone's President, Donald C. Power.

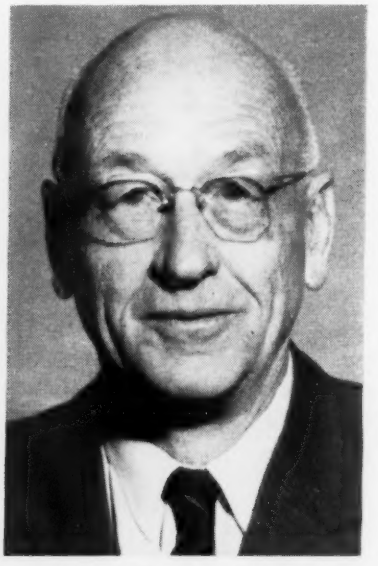
Mr. White is being transferred to the Southeastern group, with headquarters located at Durham, N. C., from General Telephone Co. of Michigan, where he has been secretary and treasurer since March, 1951.

A graduate of Carroll College in Waukesha, Wis., Mr. White received his Ph. B. degree in 1938. He has been associated with General Telephone System since November of 1938.

Harry Reinhardt Retires

HARRY REINHARDT, vice president and chief engineer, California Water & Telephone Co., retired effective January 31, after 28 years of service with the company.

Mr. Reinhardt has been active in utility engineering since 1912 when he joined the early water works companies of Oakland and Berkeley,



HARRY REINHARDT

Calif. He stayed with these early predecessors of the East Bay Water Co. until 1928 when the properties were purchased by the East Bay Municipal Water District. When he left the East Bay Co., he was acting as its assistant general manager.

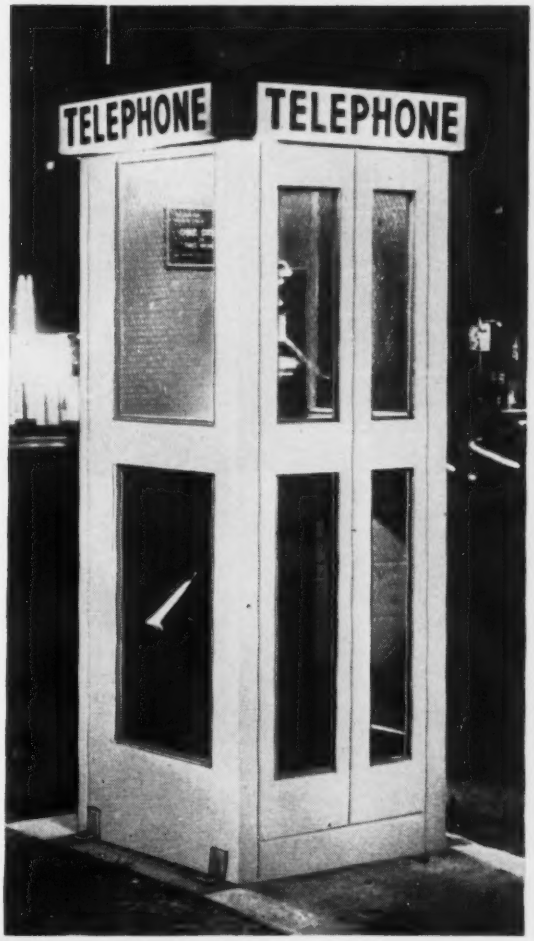
He served in the U. S. Army Engineers during World War I and was discharged in 1919 as a Captain.

Mr. Reinhardt's early duties with the Loveland Organization consisted of engineering studies for the purpose of purchasing and consolidating various water and telephone utilities. He served in Texas, Oklahoma and California. As an engineer with the Loveland firm, he also made numerous other utility studies.

When California Water & Telephone Co. was organized in 1935, Mr. Reinhardt was appointed vice president and chief engineer. In this capacity, he was responsible for the construction during 1943-1945 of Loveland Dam near San Diego and Los Padres Dam on the Monterey Peninsula in 1948-1949.

He is a member of the Society of American Military Engineers and the American Water Works Association. He served as President, California Section, AWWA in 1939.

4 ways to tell a telephone with GEECO lighted signs



BETTER LOCATIONS, GREATER REVENUE

. . when you answer the question "Where's the phone?" with a colorful identifying sign that is an attractive addition to any installation.

1 PROTECTING IDENTITY FOR THE OUTDOOR BOOTH: COMBINATION LIGHT AND SIGN

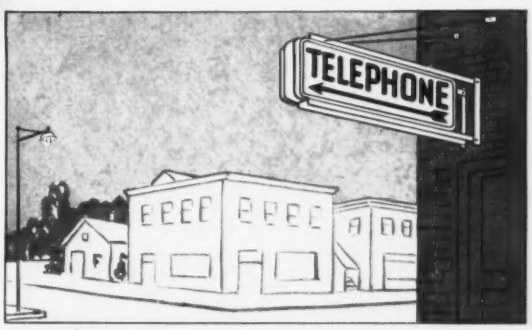
Provides a pool of light around the outdoor booth that makes the area more inviting . . . offers protection to your patrons . . . adequate light to use the directory and dial the instrument. Installed as required, depending on booth location.

2 FOR AN EXCLUSIVE LOCATION: THE "600" SERIES

Finishes available in plated Satin Copper or Brass or four colors of Hammered Baked enamel. Faces in one of seven different background colors with white lettering. Colored lamps in tinted or shaded effects. Easily installed. Direction arrows. A versatile and eye-catching sign.

3 DEMAND ATTENTION WITH COLOR: THE "500" SERIES

Dimensional directional sign blends beautifully with modern surroundings. Made of satin chrome finish and colored Plexiglas panels with raised letters in contrasting hues. Tints and shaded effects. Lighted with 15 watt' fluorescent lamp. Variety of color combinations and directional layouts.



4 POINT THE WAY TO A REMOTE LOCATION: THE T-240 SIGN:

A directional sign to point out an outdoor booth, or for use indoors where larger sign is desirable. Plexiglas face is lighted with slimline fluorescent lamps, and body of sign is of lifetime aluminum. Easily mounted.

WRITE or CALL for Literature and Prices!

GEECO, INC.

MANUFACTURERS OF CUSTOM

SIGNS and DISPLAYS

SHEET METAL AND PLASTIC FABRICATION

TEL. 3-0271 · BOX 361 · SAINT JOSEPH, MISSOURI

WASHINGTON NEWSLETTER

Minimum Wage

THE LATE February-early March hearings of a Senate Labor subcommittee on proposed changes in the Fair Labor Standards Act (minimum wage law) were expected to set the stage for one of the most concerted efforts in years by labor union leaders to have coverage under the act broadened, including a drive to have removed the exemption for switchboard telephone operators in exchanges of fewer than 750 stations.

Among bills already introduced in Congress, a number deal with the wage-hour law and several include specific proposals to end this exemption. Rep. Miller (D., Calif.) has again put into the Congressional hopper a bill that specifically and exclusively deals with the switchboard operator exemption. Rep. Augustine B. Kelley (D., Pa.) is another who has introduced legislation that calls for a removal of a number of exemptions, including the one for such operators.

With the administration backing proposals to broaden the coverage and a number of influential Democratic Party leaders favoring such a change in the Democratic-controlled Congress, many observers feel that this could very well be the year when some sweeping changes are made.

Foreign Attachments

THE ENTIRE complexion of regulatory proceedings dealing with foreign attachments appears to have been changed by the order handed down by the Federal Communications Commission in carrying out the recent remand of the US Circuit Court of Appeals for the District of Columbia setting aside the Commission's 1955 decision in the Hush-A-Phone case.

The FCC has ordered the American Telephone & Telegraph Co. and Bell System companies to file tariff schedules, effective April 1 on not less than 30 days' notice, modifying their tariffs to permit use of Hush-A-Phones or other devices which do not injure telephone company employes, facilities, or public use of telephone services, or impair operation of the telephone system.

In the past, the FCC has upheld the telephone companies' right to prohibit all foreign attachments, except as specified by order — such as its rulings permitting recording devices provided they are connected by use of recorder-connectors furnished by the telephone companies, and authorizing automatic answering and recording devices furnished by others where they are specifically approved by state commissions for intrastate service. The right remains under the new FCC order, but the exceptions appear to be broader.

Any moves by manufacturers or distributors of the many foreign attachments on the market — over the years there have been as many as 200 — were expected to await the filing of the tariff modifications by the Bell System companies.

There is known to be extensive interest in the possibility of using recording devices (as opposed to answering devices, which customarily record a message of short duration) without the "beep signal" required by the Commission. Many business firms would like to employ recorders to keep a record of telephone orders, for example, but find it impracticable to use the "beep tone." The tone signal, of course, was imposed for reasons of safeguarding privacy, and whether the court and FCC rulings have any effect on the recorder situation remains to be seen.

The Commission declared that "In addition to invalidating the (telephone companies') foreign attachment tariff regulations insofar as they bar the use of the Hush-A-Phone device, an inescapable consequence of the court's opinion is to render such tariff regulations unjust and unreasonable insofar as they may be construed or applied to bar a customer from using other devices which serve the customer's convenience in his use of the facilities furnished by the (telephone companies) and which do not injure the telephone companies' employes or facilities, or the public in the use of (telephone) services, or impair the operation of the telephone system.

"As we construe the court's opinion, a tariff regulation which amounts to a blanket prohibition upon the customer's use of any and all devices without discriminating between the harmful and harmless encroaches upon the right of the user to make reasonable use of the facilities furnished by the (telephone companies).

"Such a regulation goes beyond what is reasonably required in the interest of protecting the defendants' employes, facilities, the telephone system, and the public from adverse effects. Accordingly, we conclude that the tariff regulation is unjust and unreasonable and, therefore, unlawful to the extent we have indicated."

In its order, the Commission commented that "In setting aside the Commission's order dismissing the complaint of Hush-A-Phone and remanding the case to

the Commission, the Court of Appeals held that (the telephone companies') tariffs, under the Commission's decision, are an unwarranted interference with the telephone subscriber's right reasonably to use his telephone in ways which are privately beneficial without being publicly detrimental.

"The court points out that the Commission's conclusions of systemic or public injury resulting from the use of the Hush-A-Phone are not warranted where the only effect of such use is a diminution of volume and clarity of the Hush-A-Phone user's voice as heard by the party to whom he is speaking. It further points out that the user may obtain privacy of conversation by cupping his hand around the transmitter with similar diminution of volume and clarity."

The Commission had found that the Hush-A-Phone — a cuplike device fitting over the mouthpiece of a telephone handset designed to provide privacy and exclude room noises — does not damage telephone facilities, but that its use impairs the quality of telephone transmission, and that unrestricted use of the Hush-A-Phone could result in a general deterioration of quality of service.

Civil Defense

ON THE legislative front, one bill that would set up a Department of Civil Defense with broad powers over many facets of the nation's industry — including communications — was not given much chance for survival, especially after a House subcommittee was told by an administration witness that "the President does not propose at this time that the Federal Civil Defense Administration be made an executive department."

The subcommittee was also warned by retiring Defense Mobilization Director Arthur S. Flemming that provisions of the bill dealing with responsibility for communications services, "as worded, would interfere with the development of a sound war organization plan for dealing with post-attack problems."

Discussing provisions of the bill, Mr. Flemming, referring to a section assigning to the head of the proposed department responsibility for "control of traffic, lighting, and civil communications," made several observations:

"(a) Under post-attack conditions, the needs of civil defense for transportation and communications services would be extensive;

"(b) It is also clear, however, that the military needs for such services would likewise be extensive;

"(c) It is clear, therefore, that overall responsibility for transportation and communications would have to be vested in transportation and communications agencies that would have the responsibility of doing everything possible to meet the needs of both civil defense and the military."

Mobilization

GOVERNMENT officials charged with responsibility for defense mobilization planning have under consideration proposed questionnaires which would be sent to the communications manufacturing industry on a quarterly and annual basis to keep defense planning officials informed of production, capacity, and other data.

Industry spokesmen have met in Washington with respresentatives of the Bureau of the Budget, the Census Bureau and the Communications Division of the Business & Defense Services Administration, Department of Commerce, to discuss the proposal. The industry participants have been asked for their views with regard to the two questionnaires.

One of these questionnaires would require manufacturers to submit annually information on production of telecommunications equipment during the previous year, covering 25 principal program items by units. Firms would also be asked to give their annual capacity, floor space, and the number of production employes.

Industry officials have been told that the information in the report is required to assist government in maintaining current defense mobilization plans and, in the event of an emergency, would be of great assistance for bomb damage appraisal and determining the criticality of manufacturers and their products. The information would also serve as a basis for determining a need for expansion in industry to meet any emergency demands.

The second form would ask for somewhat similar information, but limited to six principal program items, on a quarterly basis. It would show production and shipment of telecommunications equipment, to be used by the government in furnishing continuing data to the President's Council of Economic Advisors.

Industry representatives who participated in the Washington meeting included: W. A. Rockwood of Stromberg-Carlson Co.; H. C. Ripley, Reliable Electric Co.; H. F. Lello, Automatic Electric Co. and Leich Electric Co.; E. C. Vannoy, Connecticut Telephone & Telegraph Co.; E. J. Girard, Federal Telephone & Radio Co. and Kellogg Switchboard & Supply Co.; Robert Johnson, Western Electric Co.; and Michael F. Tupica and P. A. Sandford, Cook Electric Co.—*By the editors of "Telecommunications Reports"*

Cabinet of No. 121 Cordless Switchboard is finished in handsome walnut with suntan keyboard. Capacity is 5 trunks, 16 extensions, 5 connecting circuits.

Get more revenue from more PBX's

with the one that fits handsomely when space is at a premium

The No. 121 Cordless Switchboard is designed for firms where a secretary or clerk also acts as telephone operator or where a cabinet PBX would be too large.

Size is only 14″ high and 26″ wide. And the smart modern styling adds a "wedge" to open up new PBX business. It blends graciously into any office setting, especially today's modern types . . . adds a new note of welcome to any reception room.

The "121" gives modern service, too, with its capacity of 5 trunks, 16 extensions and 5 connecting circuits. "Instantaneous busy" feature prevents interference with toll calls. Common talking circuits on lines, individual line relays (to prevent line leakage), and indicating lamps all add up to easy operation.

Servicing is easy, too. Just let down the hinged key panel and lift off the rest of the cabinet as a complete unit.

Call or write the Stromberg-Carlson representative in your area for technical data and sales literature.

S-C STROMBERG-CARLSON

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 6, Chicago 6, Kansas City 8, Rochester 3, San Francisco

GD GENERAL DYNAMICS

EDITORIAL

"Sixty Candles On The Cake"

OUR RESEARCHERS have been busy these past few weeks. Ancient files have been removed from storage, properly dusted and restored to active duty. Fragile, aged reports, articles and photographs have been carefully placed in order as our group took time out from the busy present to take a long close look at the past.

The reason for this sudden interest in the past is that this year — 1957 — marks the sixtieth anniversary of the Independent telephone industry and the United States Independent Telephone Association (USITA).

That fact makes 1957 a *Diamond Jubilee Year* for all members of the Independent telephone industry. It makes the present year one for looking back to the year of 1897 when whatever strength in the industry was purely individual and every operator had to fight out his own problems with such assistance and advice as he might pick up from the manufacturers and from other operators.

Also, 1957 is a year for remembering such pioneers as James E. Keelyn, Harry B. MacMeal, Thomas H. Marshall, George W. Beers, H. C. Young, J. A. Leaks, Samuel Stone, W. S. Gilbert, L. D. Robinson, Charles Truitt, John Burke, J. A. Slade, James M. Thomas, the first president of the national association, and the many others who realized the importance of forming a central organization where men could exchange ideas and action could be taken on all matters affecting Independent telephone companies.

We believe it is a time for properly saluting and appraising the past and we well know USITA is arranging a proper celebration of the Independent telephone industry's *Diamond Jubilee* Year. (*See story on page* 58.)

The success of USITA's plans depends, we believe, on the support given those plans by the individual Independent telephone companies, the Independent manufacturers, suppliers and related firms.

In its Member Letters, USITA has pointed out several methods which can be used by all members of the Independent telephone industry to stimulate public interest in the industry's *Diamond Jubilee Year.*

Since we believe these suggestions have much merit we suggest there is no better time than right now for all industry members to:

(1) Start carrying the message — "60 Years of Independent Telephony 1897-1957" on all letterheads, invoices and mailings.

(2) Have a suitable die prepared for use on the stamping machines carrying the same wording mentioned above.

(3) Consider holding an "open house" featuring the part the company has played in the history of Independent telephone in-industry.

(4) Refer to the anniversary in the company house organ and local advertising.

(5) Talk to the local newspaper editor, give him the facts about the 60th anniversary of Independent telephony and arouse his interest in presenting a story of the local company's history and its progress.

(7) Use the 60th anniversary theme in window displays, commercial office displays and in talks before local groups.

As we see it such activities will emphasize the importance of the Independent telephone industry to the nation and the part the industry has played in providing the nation with the world's best telephone service.

The ideas listed above are but the start of many that will come from USITA during this anniversary year. And our prevue of what's ahead indicates 1957 will be a year all Independents can and should celebrate.

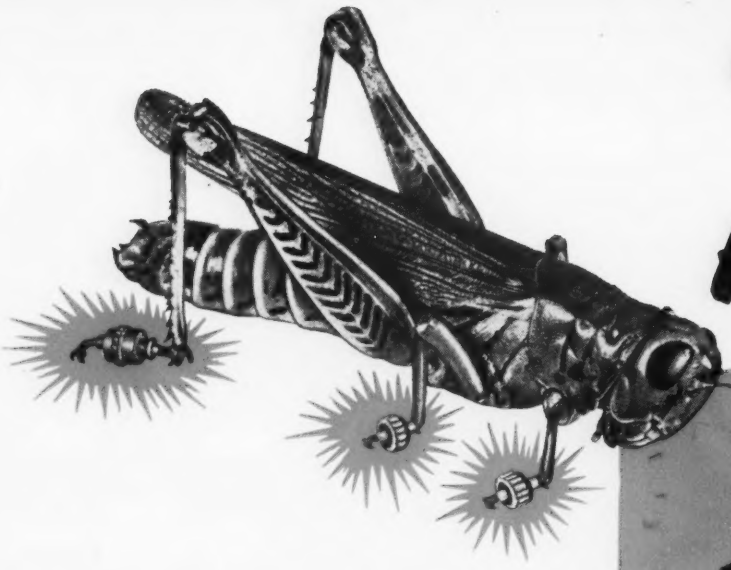
It will be as we said a few paragraphs back a year for reviewing the past. But knowing the Independents as we do we also know it will be a year for looking ahead and that is as it should be.

USITA tells us response to its Anniversary plans has been enthusiastic and that too is as it should be.

In fact we hope the enthusiasm increases until every company, every manufacturer and supplier, and every member of the Independent telephone industry is proudly telling the world 1957 is the *Diamond Jubilee Year* for the Independent telephone industry.

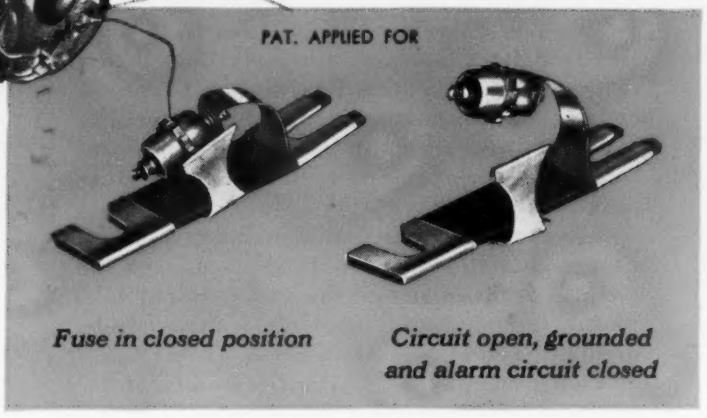
That story needs telling and we hope you'll be telling it many times to many, many people. Also, we hope you'll be on hand at the October convention to pick up your slice of USITA's 60th Birthday Cake.

(The foregoing editorial, although copyrighted, may be reprinted in whole or in part without charge, provided credit is given this publication and a copy of such reproduction is filed with this publication. This legend need not appear on the publication.)



Grasshoppers now have HEAT COILS

An Improved Method of Protecting Circuitry and Components.



Fuse in closed position

Circuit open, grounded and alarm circuit closed

By combining the grasshopper fuse and the heat coil, a new economical and positive acting fuse, arc free, with accurate operation time is now available to wire communications and electronic equipment designers, engineers and manufacturers.

Resettable, after the trouble has been cleared, by re-engaging the heat coil ratchet and all parts easily replaceable make this new fuse attractive as a maintenance cost reducer. Sturdier in construction, with the fragility of the fuse wire eliminated, the new Grasshopper with heat coil permits easier packaging, handling, installing and maintenance.

Heat coil operation is simple and positive. When subjected to more than the rated current, the ratchet which is permitted to revolve, releases the ground and alarm spring. After the trouble has been cleared, and the current flow is normal, the fuse can be reset manually by the ratchet which is again locked into position. In the case of abnormal overload or potential where the nichrome wire coil has been damaged, the heat coil can be unscrewed and easily replaced without disturbing the grasshopper fuse base.

Table Showing Interchangeability of
HEAT COIL TYPE GRASSHOPPER FUSES

Catalog No. Note 1	Code No. Note 2	Rated Resistance (Ohms) Max.	Rated Resistance (Ohms) Min.	Will carry for 3 hrs. a current of (Ampere)	Will operate in 210 seconds on a current of (Ampere)	Size screw slotted for	Mounting Centers
170-509	74-A	21.0	19.0	.10	.18	No. 6	1½
170-510	74-B	4.1	3.7	.24	.40	No. 10	1⅜
170-511	74-C	8.0	6.5	.185	.265	No. 10	1½
170-512	74-E	8.0	6.5	.185	.265	No. 10	1⅜
170-513	74-F	57	53	.055	.110	No. 10	1½
170-514	74-G	57	53	.055	.110	No. 10	1⅜

Note 1—Cook Electric Company Reuseable Fuse
Note 2—Conventional Coil Replaceable Fuse

COOK ELECTRIC Company
Since 1907

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

"Whipping the problems depends on — (1) accurate forecasting of future growth; (2) development of a good short and long range construction program; (3) an economical job of engineering plant extensions and mechanizations; (4) good service and maintenance; (5) good accounting job; (6) good public relations job . . ."

The Major Problems

Of Small Community Operations

By J. W. HECKMAN

Solving the problems of a small exchange is no easy matter. This paper, presented at the convention of the Rocky Mountain Independent Telephone Association, discusses some of the things that are available to help meet and whip the problems.

FOREMOST among the fundamentals of doing a good telephone job, whether operating in a large or small exchange, are these six requirements:

(1) The accurate forecasting of future growth; (2) the development of a good short- and long-range program of construction; (3) an economic job of engineering plant extensions and mechanizations for maximum service; (4) good service and maintenance; (5) a good accounting job in billing the customer and in accurately recording the investment and expense figures; and (6) a good public relations job.

The public relations job has been listed last, not because of its lack of importance, but because a good public relations job can't be done unless we do a good telephone job, and give customers good service.

Now let's look at each of these fundamentals, to see if there are any differences between operating in small and large exchanges.

Accurate forecasting of future growth has always involved the consideration of a great many intangibles. Basically, telephone growth forecasting requires the accurate forecasting of three things: How many people are you going to have in the service area; how much money are they going to have in their pockets; and where are they going to live? This is the fundamental knowledge that any service industry must have to accurately forecast growth.

Now, in the last couple of years we have added one more intangible to be considered in our forecasting. The telephone industry as a whole has operated for many years on the basis of giving the customers what they demanded from us, and we have no knowledge of what we can do when we really try to sell our service. The merchandising concept must start with the forecasting of future requirements or we are never going to realize our full potential.

Forecasting in small exchanges is more difficult than in a large metropolitan area because any impact of a new industry generates growth which, percentage-wise, is almost explosive, and very often a new industry comes

on the scene wtih practically no advance warning. The character of growth in a small exchange also causes difficulty in developing a good short- and long-range program of construction. Generally, the small exchange character of growth is either very, very static or explosive.

Engineering Economically

ENGINERING economically for a small exchange operation also presents some very difficult problems. In the first place, the plant in the small exchange is much higher on a unit cost basis than a plant in a large or medium-size metropolitan area. Recent studies of various types of outside plant and their unit construction costs with supporting structures indicate that the high cost outside plant construction is the type of construction most generally found in the small exchange — namely, open wire and small cables.

This means that even though in the small exchange the miles of conductor to serve a customer might be shorter in the urban area, in the over-all the cost-per-conductor mile of installing this high-price plant will make the outside plant cost per unit very much higher.

Under present construction methods, this will continue. Generally speaking, central office equipment, while slightly higher per unit in the small exchange, does not have nearly the effect on the total investment per telephone as the higher cost of outside plant.

In the past it might have been possible to provide inadequate service in small communities without too much customer reaction, but we feel we cannot do that today. However, I don't think there is any question but what it is more costly in the smaller offices on a per unit basis.

In the public contact work in our large offices the service representative can handle from 2,000 to 2,500 accounts. In a small office with two or three hundred accounts, with the requirement that the office be covered during the business hours of the day, the cost is far greater on a per unit basis. In the traffic job if you have a requirement for 30½ operators in the busy hour there is very little effect on overall costs or service if the board is covered with 30 operators or 31 operators.

However, in a small office, if the requirement is for 2½ operators, cost-wise there is a substantial difference if you cover the board with three operators, and probably a service penalty if you cover it with two.

"Basically telephone growth forecasting requires the accurate forecasting of three things: (1) How many people you are going to have in the service area? — (2) How much money are they going to have? — and (3) Where are they going to live ? ? ?"

Good Maintenance

THERE IS no reason why we can't give just as good maintenance in a small office as we do in a large office. As a practical matter, we know that a dial central office maintained by personnel located at some other exchange does not get the proper attention. In the case of manual offices, we usually find that the switchboard maintenance is the last thing done.

But, if we do a first-class maintenance job, again we come up against the higher unit cost problem. As an example, we in the Bell System have a very complex and complete system of measurements of performance for each department. One of these measurements is a system of labor units for maintenance, in order to help us forecast our manpower requirements to maintain an exchange with a certain type of central office and outside plant. These maintenance units are translated into labor units.

As an example, there are three times as many labor units per hundred wire miles of open wire than we have in one mile of 51-pair cable. We have over five times as many labor units in 200 wire miles of open wire as we have in one mile of 101-pair cable.

So the cost of maintaining a plant consisting largely of open wire and very small cables is substantially higher than a plant with large cable composition. I would like to reemphasize that it is possible to do a good service job in a small exchange, but in practically every area of operations it costs a little more.

As a result of the higher costs in operating small exchanges, I believe that we are definitely doing a poorer service job than we should be doing. For example, in the traffic job I think we are pretty consistently short that half a girl, even though percentagewise it means a great deal to the service.

Commercially, in order to cut costs we use a payment agency — located in a bank or drugstore — and as a result we lose a valuable personal contact with our customers. In the maintenance job, because of the high costs, I suspect that we too often do nothing until we have a service breakdown. In other words, no preventive maintenance on a programmed basis.

A good accounting job is also more difficult where performed in the smaller offices, and falls under pretty much the same category as the rest of these service problems. We can do a good accounting job, and I think generally we do. However, it costs money. There are just as many summary forms to make to come up with the answers in the small exchange as we have in a large exchange.

And in the case of billing, summaries are made for balancing purposes for fewer accounts than is necessary for the most economic operation. Generally speaking, the small exchange accounting is more costly to handle because of low volumes and the inability to specialize clerical work.

Public Relations

THIS BRINGS us to our public relations problem, and I think that we are developing in our small exchanges a serious problem of public relations, because of the factors that I have mentioned.

In the first place, in order to reduce traffic costs we have mechanized the small office operations very rapidly. The result has been that we

have taken what was esentially a community secretarial service and turned it into a robot. In addition, we remove all company personnel to a distant location where they can only be reached by telephone. So the end result is that the character of the telephone company is changed from a very important segment of the community to a business that is operated by people from outside.

It is a very serious problem to us, and I am frank that we still do not have the answer. From a public relations standpoint we know what should be done, but from the operating viewpoint, when we look at the dollars and cents, we question the cost of providing commercial representation in unattended dial exchanges.

Some day this attitude is going to hurt us badly, and I believe that we ought to start getting representation back into those communities on some sort of a basis. There are several ways we could improve in this area:

(a) Appoint a group manager to supervise small exchanges in an area. He would be located in one of these exchanges and would travel to the others. He would belong to their civic clubs and, as far as possible, become a part of each community.

(b) Locate a plant man in each of the small exchanges and appoint him manager, even though he would be doing craft work at other exchanges much of the time.

(c) Have a business office in each of these communities with a well-trained and efficient service representative in charge. If this is not economically sound, a complete training program for collection agents should be caried out.

(d) Have one person in the large controlling exchange supervise the activities in the small community dial exchange. The representative should spend as much time as necessary to adequately carry out the supervision of various public relations programs in the exchange.

Cost Reduction Methods

NOW WE HAVE talked up to this time about our problems. Now let's talk about some of the things that are available to help with these problems, and some of the things that we should have from our research in the future to help reduce the cost of small exchange operations.

In the area of outside plant construction, the development and the manufacture of polyethylene insulated cable in the last two years has opened a field we certainly intend to explore.

Generally speaking, the small exchange offers more opportunities for burying plant by the use of the various techniques that are now available. Since overhead construction is the highest cost item of plant per unit, it looks to me like we should be making our plans to get just as much of our plant underground by plowing as we possibly can. Cable plowing is a relatively new technique, and I for one feel that we are going to develop it to the point where we will be getting our plant in service at very much lower unit cost than we have with overhead construction.

We have encountered a few problems with polyethylene cable. If you use underground splices, these splices must be plugged, since moisture getting into the cable, while not interfering with the conductors, will flow along inside the sheath and into the splices, and up to now we have found no really good technique for making the splices waterproof.

At the present time the best answer seems to be to bring the cable out on a short pedestal and splice it above the ground, which has other advantages in addition to solving moisture problems.

The inexpensive short haul carrier equipment recently introduced to the industry will give us a facility that has not been available previously. These carriers can be put on existing open wire lines at a relatively low cost per channel installed. These facilities will enable us to unload rural telephone lines inexpensively or to offer urban type service in a rural area, by assessing mileage charges, and do it profitably.

The electronic switching systems, which will be available soon, are going to enable us to put small offices in very limited space. New transmission concepts make it look as though we are catching up to switching in the matter of cost.

In other words, perhaps in the future we will have operating offices serving customers over a 100-mile area with pole-mounted line concentrators being able to pick up the first available trunks, those trunks being inexpensive carriers. The development of the transistor makes this all well within the realm of possibility. It is true that generally the developments from telephone research have benefited the congested toll routes and the congested urban areas up to now. I believe, however, we are getting now to the point where substantial benefits are going to accrue to the small exchange operation. In the realm of forecasting tomorrow's market, I believe these techniques are getting better every day.

More economic data is being made available, and I am sure that you can call on your Bell System associates

"The character of growth in a small exchange causes difficulty in developing a good short and long-range program of construction. Generally small exchange growth is either very static or explosive."

to give you some help in developing the techniques of forecasting in your individual exchanges, so that you will have facilities where and when they are needed.

However, today we are not so much concerned with techniques as we are in learning to live with an entire new concept. Forecasters must believe we can sell 80 per cent 1-party service, and that 90 per cent of the families will have service. They must believe that we have the ability to sell service, and that better service generates more usage.

The fact that we have been so universally successful in our selling program, and with such things as our pre-wiring program, should stimulate more development in the future, and provide the background to make us more bold in providing plant to meet these objectives.

In case you are not familiar with the pre-wiring program, we are wiring houses during construction with four telephone outlets for $10.00. In Idaho, we have made a sale on every contact made to date. We feel sure the additional outlets and ease of installation will stimulate the extension sales program.

The electronic office development and the perfecting of burying techniques, I believe, will be very helpful to the maintenance problem in the future. From the standpoint of public contact and public relations problems, I believe the only answer is that we must accept the fact that these operations are going to be more costly in our small exchange operations, and spend this money, because it may be very much cheaper in the long run.

Financing

UP TO NOW I have been discussing the operation of small exchanges in a Bell System company. Now, when we talk about small exchange operations in small companies, we have all the disadvantages I have discussed, plus a few others. In the telephone business financing is a very serious problem. Any kind of an expansion program, such as the one all of us have experienced in the last 10 years, requires long term debt financing or equity financing if possible. In a small company operation this poses a very serious problem. I suppose a company operating in communities that are fairly stable could probably generate enough cash

"Forecasters believe we can sell 80 per cent one-party service and that 90 per cent of the families will have service. They believe we have the ability to sell service and that better service generates more usage."

in the business to get along on local commercial bank loans, which normally are for fixed amounts and not to exceed approximately five years. Any expanding company financing itself on this basis could not possibly have too much money left over for the owners.

Equipment manufacturers are able to arrange financing over a longer period, and with telephone equipment of this type lasting anywhere from 25 to 30 years, it is logical long term financing if the entire plant is not mortgaged so you are hampered in subsequent negotiations.

The outside plant, in most cases has a service life of approximately the same number of years as a central office, and the ideal arrangement, if expansion is to be made with debt capital,is a line of credit of some type with a large banking institution with a long repayment program.

Public security issues are practically out of the question for a small Independent company. If it were possible the financing costs would be high. However, any well managed company, large or small, is able to obtain capital from investment banks or federal agencies today.

Accounting

THE SMALL company also suffers in its clerical operations. In many cases it may not be profitable to invest in the expensive equipment required to mechanize clerical operations, so it does mean a much higher cost accounting job. I suppose it would be possible for a group of Independents operating in somewhat the same area to hire a public accounting firm to do the accounting job for all the companies on a standardized basis. I know this has been done in a few places in our area, and it seems to me it might offer some possibilities for exploration. As equipment becomes more complex, the securing of qualified personnel, and getting them adequately trained is a serious problem for small companies. The Bell System companies might be of some help in this respect. I am sure Independent company personnel would be welcome to many courses which form part of our training program.

Proper forecasting is more critical in small companies. A company operating over a large area can make a mistake in forecasting growth in a small exchange without materially affecting overall results. A substantial mistake in a small exchange of a small company can be very serious. As a result, the small company must be more conservative.

I should like to go back a bit on our accounting requirements. If you will remember, I stated that accurately recording the investment and expense figures was one of the requirements for good telephone service. I also said any well managed company could secure financing. I should like to point out a few facts to you that seem to me to warrant discussion.

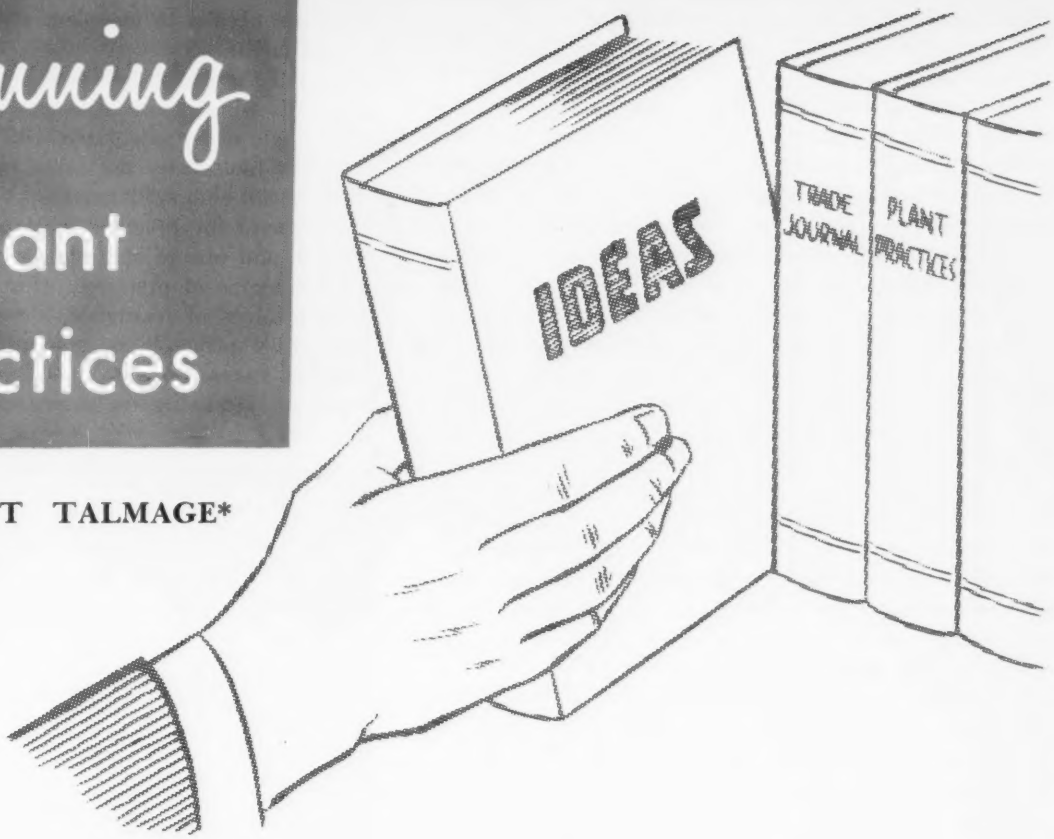
In looking through the statistics available through our various public utilities commissions, I have been struck by the fact that companies required to follow the F.C.C. system of accounts for Class A companies have an investment per telephone ranging from $200 to $400 per telephone, depending upon the degree of mechanization.

I have also been struck by the fact that many small telephone companies have investments per telephone as low as $65, $70, $75. To me, this makes it obvious that sometime in the past, or even in the present, standard accounting procedures for telephone companies have not been followed.

This, coupled with the fact that there is no question but what construction costs per telephone are substantially higher in small exchange

Please turn to page 48

Planning plant practices



By T. DEWITT TALMAGE*

"TODAY'S PLANTMAN must adopt new techniques and practices to get the maintenance job done economically and satisfactorily from the viewpoint of the customers who expect modern service when they pay modern rates."

IN THE EBB and flow of workaday duties many of us have witnessed pressing tasks overshadow and even divert attention from some problems to the extent that they get sidetracked or lost in the shuffle.

Of course there are other conditions that cause unsolved problems to accumulate, partially finished work to remain uncompleted, costs to gradually creep upward, and good intentions to go astray.

The fluctuating volume of work that any active and progressive business generates results in periods when some jobs cannot be handled with the promptness that they deserve. In this respect it is to be expected that the more obvious tasks will receive attention first. Yet the timely solution of some of the less-obvious problems can have an equally, if not more, beneficial effect on the year-end statement of fiscal operating results.

Where this condition exists in the telephone industry, it behooves each individual employe to be constantly on his toes to do his part in establishing and maintaining a satisfactory balance between income, expenditures, and quality, including continuity, of telephone service supplied to the community. On the other hand it is reasonable to expect that the policies of the enterprise will permit the company to meet the employe's efforts half-way so that effective teamwork can be brought to bear on those problems that cannot any longer be ignored.

Exchanging Information

FORTUNATELY, the make-up of the telephone industry lends itself to a more ready interchange of operating experiences than exists in some other fields of endeavor. This fact often eliminates the need of each telephone company, of which there are over 4,000 in this country, to work out separate solutions to common problems.

In addition to the time and money saved from taking advantage of this situation, a degree of standardization is thus achieved that helps to make telephone service more uniformly satisfactory throughout the country.

The communication trade publications serve an important funtion in collecting and disseminating information which is more comprehensive and to the point than is found in magazines of other industries where trade secrets, confidential know-how, and valuable tricks- of-the-trade are zealously guarded from competitors.

What is a current example of a common problem?

W. K. MacAdam, of the American Telephone & Telegraph Co., in a recent discussion on the new emphasis in maintenance for communication systems declared: "For those who are carrying out the telephone maintenance job, the most important, but probably least stressed,

Educational Manager, Kellogg Switchboard and Supply Company, Chicago 38, Illinois.

aspect of maintenance is the availability of adequately trained and educated technicians supplied with proper testing equipment which they know how to keep in adjustment and repair."

The need to train telephone plant men to become accomplished testers arises especially, but not entirely, in those conversions of telephone central offices to dial operation which are accompanied by the removal of the services of the telephone operators whose cooperation was of great assistance in expediting plant maintenance activities. This situation, combined with the necessity of meeting new and higher maintenance standards resulting from, among other things, the increase in operating voltage used in dial switching systems (compared to that used in most manual switching systems), require that the maintenance technician be supplied with the correct kind and quality of testing devices. In turn, the plant man must adopt new techniques and practices to get the maintenance job done economically and, equally important, satisfactorily from the viewpoint of the customers who expect modern telephone service when they pay modern rates.

Simple Test Sets

TESTING equipment does not necessarily have to be either complicated or expensive. A simple example is the ordinary telephone receiver equipped with test leads and suitable test clips which, in the hands of a good testman, is useful even though limited in scope. It is shown being used by a tester in the center of *Figure* 1.

A more useful, yet simple, testing device is the hand test set made up of a handset assembly of a receiver, transmitter, condenser and a switch for cutting the transmitter in and out of the circuit, together with convenient length test leads and an assortment of test clips of various styles and sizes or a cord and plug. For applications throughout dial telephone switching systems, this testing device includes a dial as an integral part of the assembly. Such a dial hand test set is shown ready for use in the center of *Figure* 2 on the bench.

In the hands of an experienced plant man, the hand test set is a valuable tool because it can be used to make such a wide variety of tests.

Where does one find out what tests can be made with a hand test set?

The answer to this question can be found in a three-part article in the July, August, and November, 1954, issues of the *Fortnightly Telephone Engineer* magazine entitled: "*The Dial Hand Test Set as an Effective Tool for Fault Location.*"

In this article John S. Reed does the telephone industry a great service by describing and, with 38 figures, illustrating a number of everyday applications of the hand test set of vital concern to plant maintenance men. This practical explanation is recommended reading to all who desire to cash in on the results that are possible to secure from a small investment in simple test equipment.

General-Purpose Tester

TO DATE a so-called "universal" test set has not been invented that will provide all of the electrical measurements required to properly maintain a modern telephone system in its entirety. Several different testing devices are needed to complement standard wire chief's testing facilities.

One of the all-around useful portable indicating instruments which reads voltage, current, and resistance on a single meter calebrated with multiple scales is the field-type multimeter also called multi-range tester, multitester, volt-ohm-milliammeter, VOM, etc.

It is used for practical work where simplicity, portability, and ease of operation are more important than a high degree of precision. (For precise measurement of low values of resistance, a test equipment utilizing the bridge principle is generally used.) Because the VOM is a versatile, convenient, general-purpose test instrument, requiring no external power supply, extensive use of it is made throughout the communication industry. One leading instrument manufacturer states that over one-half million of his VOM's are now in use! (Not all in the telephone industry, however.)

FIGURE ONE:—The telephone industry must be alert to the need for competent men, capable of developing further, if the challenges of tomorrow, of next year, and of a decade hence are to be met. In this photograph an experienced dial central office maintenance technician is demonstrating the usefulness of the test receiver as a part of an introductory course for new plant employes.

While a volt-ohm-milliammeter is designed with portability in mind and will withstand a reasonable amount of abuse, still it is advisable to treat it with care as its mechanism is actually more delicate than that of a watch. However, if a VOM is kept clean, free from continuous, severe vibration, and is not dropped, it will give long and dependable service.

Dropping portable instruments is the usual cause of damaging the bearings which constitute the largest percent of any single class of instrument troubles. Therefore, the test set should be purchased complete with a suitable protective carrying case equipped with shoulder or neck strap or similar device to hold this source of damage to a minimum.

Electrical abuse of instruments usually involves subjecting them to a higher voltage or heavier current

than they were designed to handle. Experienced testmen always use a range initially that is 50 percent or more higher than the value of the voltage or current to be measured. However, accidents will happen and errors may be made in choosing the range or function when using multimeters. Errors of this type may damage the VOM and deprive the maintenance technician of the use of his equipment until repairs can be made by an authorized instrument service firm.

Multimeter Improvements

TO PROTECT VOM meter movements and internal circuits against accidental burn-outs, new designs of portable multimeters are now available that incorporate techniques that protect them from high voltages and currents. Several manufacturers are producing multimeters equipped with meter overload protection. This feature eliminates the expense for repairs and the time lost in returning the instrument to the repair shop.

Another encouraging trend in portable instrument design is the improvements made in readability of the scales. Greater legibility of the scales is being provided by increasing the length of the scales, color coding the scales, using mirrored scales, illuminating the scales, etc. However, good eyesight is still a basic requirement of a testman. Because normal vision is needed in most communication equipment maintenance jobs, employment of new plant workers should include a check of their vision.

FIGURE TWO:—This group of enterprising telephone plant men are following the good advice of Confucius who, in 150 B. C., recommended "Study as if you were never to master it; as if in fear of losing it." The two men in the foreground are concentrating on improving their apparatus adjusting techniques while in the background two others are intently studying the application of a multimeter (VOM) to testing a dial telephone circuit.

Telephone supply catalogs include listings of a variety of test equipment. Some thought should be given to choosing test sets that are most generally useful compared to their cost. Discussions with neighboring companies are often productive of ideas and suggestions about the most commonly used test gear.

After the general type of test set is determined, it may be found that in condensed catalogs the brief descriptions of specific models are not complete enough to base a final decision. In nearly all cases the distributor, upon request, can promptly supply more detailed descriptive sheets on individual makes and styles of instruments.

Sometimes a complete operator's manual or instruction book can be secured in advance of purchasing a test set which will provide a wealth of interesting, pertinent data. Operator's manuals usually describe in considerable detail such essential information as recommended applications, methods of calibrating and operating, percentage of accuracy, types of overload protection, if any, precautions to be observed, instrument limitations, maintenance suggestions, and sometimes some basic theory directly applicable to the meter.

Where there is a choice of two or more instruments, such information can be tabulated, analyzed, and evaluated. This method of systematically comparing instrument characteristics is of assistance in picking out the one that closest meets the basic requirements of the job to be done.

In the case of multimeters, a methodical analysis such as suggested, of available types is desirable because there are over a dozen manufacturers that produce a wide choice of VOM"s.

Understanding Meters

TESTING is needed to keep any telephone system working. *Good* testing is needed to keep it working *well.* This demands, among other things, that the required electrical tests be made accurately and with facility if the costs of maintenance are to be kept within reasonable limits.

There is, of course, more to telephone testing work than just carefully reading where the pointer stops on the meter scale. A knowledge of electrical fundamentals is needed by the technician to allow him to select the most suitable test equipment for a particular job and to interpret correctly the data obtained. In addition, a grasp of fundamentals will better qualify him in the use of both general-purpose and specialized test sets, including the test circuits that are built into certain communication equipments. All of these abilities are important requirements for efficient performance testing and trouble-shooting.

To some maintenance workers electric meters and electrical measuring instruments appear to be complicated, and somewhat mysterious devices. Very often, however, as the fundamental principles of operation and construction of different types of instruments become better known, their apparent complexity disappears and added significance is placed on their adaptability in checking and testing electrical circuits and equipment.

How does one go about learning the practical construction and principles of operation of standard electrical measuring instruments?

An effective training manual on the subject of electrical instruments is the well-organized instruction book entitled "Electrical Measurement," published by Delmar Publishers, Inc. It has long been successfully used to train apprentices and technicians in schools and other training programs. Information on this book may be obtained from TE&M's managing editor.

This 98-page, down-to-earth book is a source of basic

Please turn to page 42

"Memo to Mr. Abercrombie...

Think you ought to know, boss, I've got a lot of time now for other jobs. Those vertical wire banks on the new XY® Dial System sure don't need any care. No cleaning—no oiling—and so few solder connections there's practically no place for trouble."

Vertical multiple wire banks are just one of the outstanding features of the XY Dial System. We also use *dual* contacts throughout, and these are welded, not soldered or riveted. The XY Universal Switch can be used as a line finder, selector, or connector —a real inventory saving. Wipers never need changing. And the "double-sided" placement of switches and circuit plates makes for a generous saving in floor space—a real economy at today's building prices.

Ask your Stromberg-Carlson representative for Booklet T-2003, which tells the complete story.

S-C STROMBERG-CARLSON COMPANY GD

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 6, Chicago 6, Kansas City 8, Rochester 3, San Francisco.

Plant Practices

(Continued from page 39)

technical information which is needed for a complete understanding of many types of electrical measuring instruments.

The book is a series of twenty-six selected instructional units arranged in groups of three. The topics are placed in the natural order of dependence of one subject or phase upon the next. Each group covers: (1) the actual building of simple meters, (2) experiments with these model meters to show how they may be used in electrical circuits, and (3) principles of operation of the commercial form of the same type of meters.

Each individual section of this instructive book is started with a clear-cut statement of the objective of that unit. A brief introduction to each new topic is followed by an explanation of trade terms and the theory, construction, and operation of basic electrical measureing instruments. A carefully developed testing program provides a sufficient number of questions to insure mastery of each unit. Helpful references to additional sources of related technical information are given throughout the text.

The appendix in this book includes a detailed list of all tools and materials required to construct the seven simple meter models. Another tabulation specifies the standard, inexpensive apparatus needed to test the wire meter models that the trainee himself has fabricated by following clear directions in the book. This study course is suitable for use in group instruction or for individual self-instruction.

No one interested in learning from the ground up about electrical meters can ever get more for his one dollar and fifty cents than when he purchases a copy of this book and studies it from cover to cover.

Conclusion

IT IS THROUGH the orderly study of such typical reference material as mentioned in this discussion and and the systematic use of modern testing equipment that the telephone worker gets the opportunity to convince himself that one correctly-made test is worth a dozen opinions. Through continued practice and study the testman can become more and more expert until his skill and confidence increase to a level where he finally understands that he can leave "the tricks of the trade" to those whose education was never completed.

The words of Benjamin Franklin still hold true today: "An investment in knowledge always pays the best interest."

Selected References

(1) "The New Emphasis in Maintenance for Communications Systems," by W. K. MacAdam, American Telephone and Telegraph Company, AIEE paper No. CP-56-1005, 7 pp., 1 fig., American Institute of Electrical Engineers, New York 18, N. Y. 1956.

(2) "The Dial Hand Test Set as an Effective Tool for Fault Location," by John S. Reed, Fortnightly Telephone Engineer, Vol. 15, No. 7, pp. 21-24, July, 1954; Vol. 15, No. 8, pp. 21-23, August, 1954; and Vol. 15, No. 11, pp. 26-27, 30 and 32, November, 1954.

(3) "Don't Get Rough with Instruments," by John H. Miller, Factory Management and Maintenance, Vol. 98, pp. 90 and 92, May, 1940.

(4) "Electrical Measurement," (a practical treatise on the construction and principles of operation of standard electrical measuring instruments), 98 pp., 87 drgs., photographs and phantom views. Delmar Publishers, Inc.

(5) "How to Use Your Trade Association," (book) by W. Mitchell, Jr., Prentice-Hall, Inc., New York, N. Y.; Chapter V, incorporating substantial recommendations and revisions by Philip Van Wyek of the Tacoma Vocational Technical School, entitled: "Employe Training," pages 44-55, inclusive. 1951.

Worth Writing For

TELEPHONE companies report school-to-home service brings extra revenue and builds goodwill. For literature on school-to-home telephone service write Special Education Division, Executone, Inc., 415 Lexington Ave., Dept. TE&M, New York 17, N. Y. . . . Write Burgess-Manning Co., 5952 Northwest Highway, Dept. TE&M, Chicago 31, Ill., for copy of catalog-bulletin describing the "Hear-Here" acoustic booth . . . Write Buckeye Telephone & Supply Co., P. O. Box 5707, Columbus 21, Ohio, for circular 1156-A, describing a flexible rubber floor duct that solves over-floor wiring problems.

Write Carter Motor Co., 2710 W. George St., Dept. TE&M, Chicago 18, Ill., for literature on dynomotors, genemotors and convertors . . . Write Automatic Electric Sales Corp., 1033 W. Van Buren St., Dept. TE&M, Chicago 7, Ill., for circular 1845, describing the Automatic Time Announcer . . . Write Ansonia Wire & Cable Co., Dept. TE&M, Muncie, Ind., for your copy of Data Book N. 53. Booklet provides latest engineering data on Stringing Sags and Tensions, Stacking Tables and Guying Tables.

Write sales manager, Electronic Products Dept., Kellogg Switchboard & Supply Co., 6000 W. 51st St., Dept. TE&M, Chicago 38, Ill., for your free copy of Bulletin 5605 on Kellogg Panhandle Carrier . . . Write A. B. Chance Co., Dept. TE&M, Centralia, Mo., for new booklet on "Anchoring," a complete guide to anchoring and guying . . . Write Fisher Research Laboratory, Inc., Dept., TE-1, Palo Alto, Calif., for copy of the 1957 Catalog of Electronic Instruments . . . Write Katolight Corp., Box 891-18, Mankato, Minn., for free folder on new, lightweight portable power plants.

Write J. H. Holan Corp., 4100 W. 150th St., Dept. TE&M, Cleveland 11, Ohio, for your copy of the Holan Series 3700 Catalog, describing a new 3-legged derrick that lifts up to 12,000 pounds, poles up to 75 feet long . . . Helpful Pocket Tool Guide No. 100 may be obtained by writing Mathias Klein & Sons, 7200 McCormick Rd., Dept. TE&M, Chicago 45, Ill. . . . Write Acme Records, Inc., Telephone System Division, Dept. S-257, Crozet, Va., for Booklet #1088 on Switchboard Keyshelf Units and Booklet #975 on Acme Flexoline.

A TELEPHONE ENGINEER OPERATING MANUAL

OUTDOOR BOOTHS

By JOHN S. REED

Outdoor booths are by no means a new item. However, their extensive usage is a new development and is proving to be a fertile revenue source.

ASKED TO NAME one of the most successful projects in the telephone field, the majority of telephone men would come up with a quick answer, "pay telephones in outdoor booths."

The popularity of this type of service quite likely arises from the fact that it is available to the public 24 hours of the day throughout the year. On the other hand, indoor public telephones are more difficult of access in places like cafes, drug stores, and filling stations because of a growing tendency of these firms to shorten the hours they are open to the public.

Public telephones in outdoor booths meet a definite need of people for prompt telephone service whenever and wherever they may be. When conveniently located and adequately lighted, they create the urge to call on the part of passers-by. In this way they supplement rather than supplant public telephones in indoor locations. Telephone men often remark on the fact that when one or more outdoor telephone booths are located adjacent to business establishments with indoor pay stations, there is just as much income from the indoor telephones as ever, while the outdoor pay stations add to the revenue.

FIGURE ONE: — Sherron Model 25-S Type 2 outdoor telephone booth with "Astradome." Booth is constructed of stainless steel with wire glass panels and is finished in any one of four colors: orange, red, yellow, green.

That public telephones in outdoor booths are a profitable source of revenue is borne out by the fact that they have made more money on a per station basis than most telephones in other service classifications. Because of their high revenue potential, they have been readily accepted by many business firms. Besides providing a monthly commission for these companies, they attract attention and tend to bring people into the places of business.

Outdoor telephone booths have a rather early history, being first installed at the Panama-Pacific International Exposition in 1915. However, they did not come into general use until 20 years later when installations were made on the East coast. During World War II, they began to spread westward, until, today, they are a common sight in hundreds of communities.

Types of Outdoor Telephone Booths

AS ILLUSTRATED in *Figures 1 to 5-C*, outdoor telephone booths are available in wood or metal construction. These modern booths are

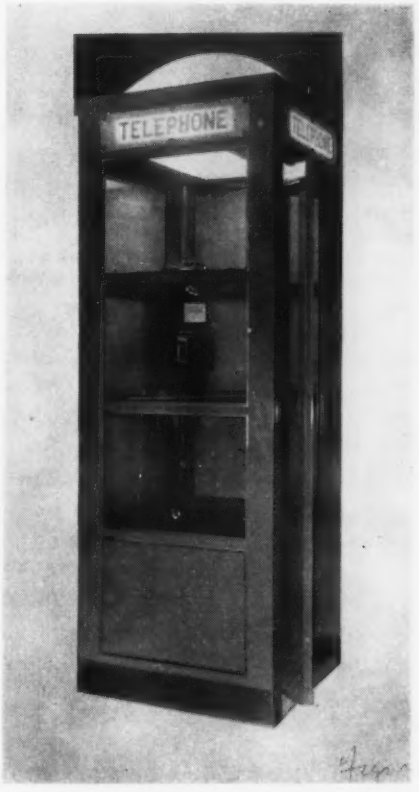


FIGURE TWO: — Sherron Model 17-S Type 2 outdoor telephone booth with "Astradome" lighting. Booth is constructed of cold rolled steel with wire glass panels and is finished in one of four colors.

durable and extremely good looking, very important qualities in attracting customers.

An important factor in the success of an outdoor telephone booth installation is the color or combination of colors chosen for the exterior decoration. This fact was discovered quite by accident some years ago when a telephone booth in a New York subway location was painted with the wrong color, a brilliant red instead of the specified maroon. The revenue from this garishly decorated booth thereafter jumped to three times the previous take!

The best colors for outdoor booths seem to be brilliant shades of red,

Please turn to page 44

FIGURE THREE: — Sherron Model 17-S Type 1 outdoor telephone booth with peaked roof. Note use of pipe rails to protect booth from damage by automobiles in filling station area.

FIGURE FOUR: — Churchill outdoor booth. This booth is made of California Redwood with oak floor, weather-proofed throughout, and is provided with wire glass panels. The booth is finished in slate, orange, or blue.

FIGURE FIVE: — Churchill outdoor booth at filling station location. The best colors for outdoor booths appear to be brilliant shades of red, orange, yellow, or green in that order.

orange, yellow, or green in that order. Red and White or any other special color combination is also available, but drab colors should be avoided.

Outdoor type booths are available with flat or peaked roofs or translucent domes as desired by the customer.

The main convenience of an outdoor telephone booth is that it can be installed in almost any reasonable location and thus it will not be in the way in crowded spots. These locations however, should be carefully selected for maximum potential revenue. Even within the same area, slight changes in the locations of these booths may appreciably affect revenue from the pay telephones.

Good locations for outdoor telephone booths are usually places in the business district where telephone service becomes unavailable after the stores close, at service stations, parking lots, drive-in establishments, motels and tourist courts, trailer camps, year-round amusement parks, armed forces bases, bus stops, train platforms, airports, arterial highway and street junctions, stadiums, cafes and supermarkets with parking facilities, and municipal buildings. Some locations are shown in *Figures* 6-12.

Although it has been stated that

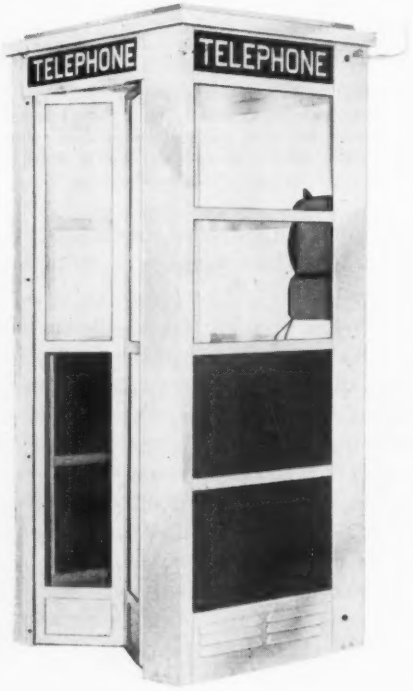


FIGURE 5-A: — The new Reynolds aluminum outdoor telephone booths are low in cost and practically maintenance free. The booth features wide areas of light and vision.

FIGURE 5-B: — The new Benner-Nawman booth is fabricated in safety glass and enamelled steel panels arranged in an aluminum frame.

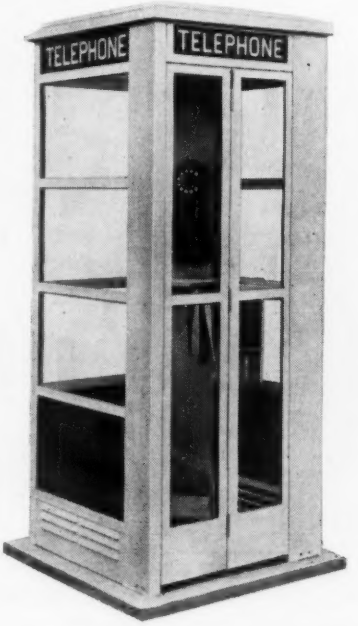


FIGURE 5-C: — The Alcoa aluminum booth is big — roomy — clean looking — comfortable. The booth may be purchased knocked down ready for assembly.

FIGURE SIX: — Outdoor telephone booth on City Hall grounds next to a post office. FIGURE SEVEN (right): — This service station has an outdoor booth on same platform with gasoline pumps, which has turned out to be a less satisfactory location than one on a corner of the station area.

FIGURE EIGHT: — Outdoor telephone booth at combination filling station and parking lot. Note use of heavy guard rails on bumper.

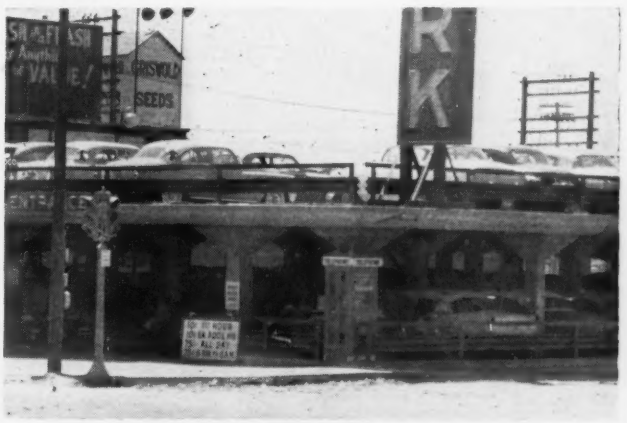


FIGURE NINE: — This location just inside a parking garage at a busy corner is well suited for the heavy traffic flow at this point.

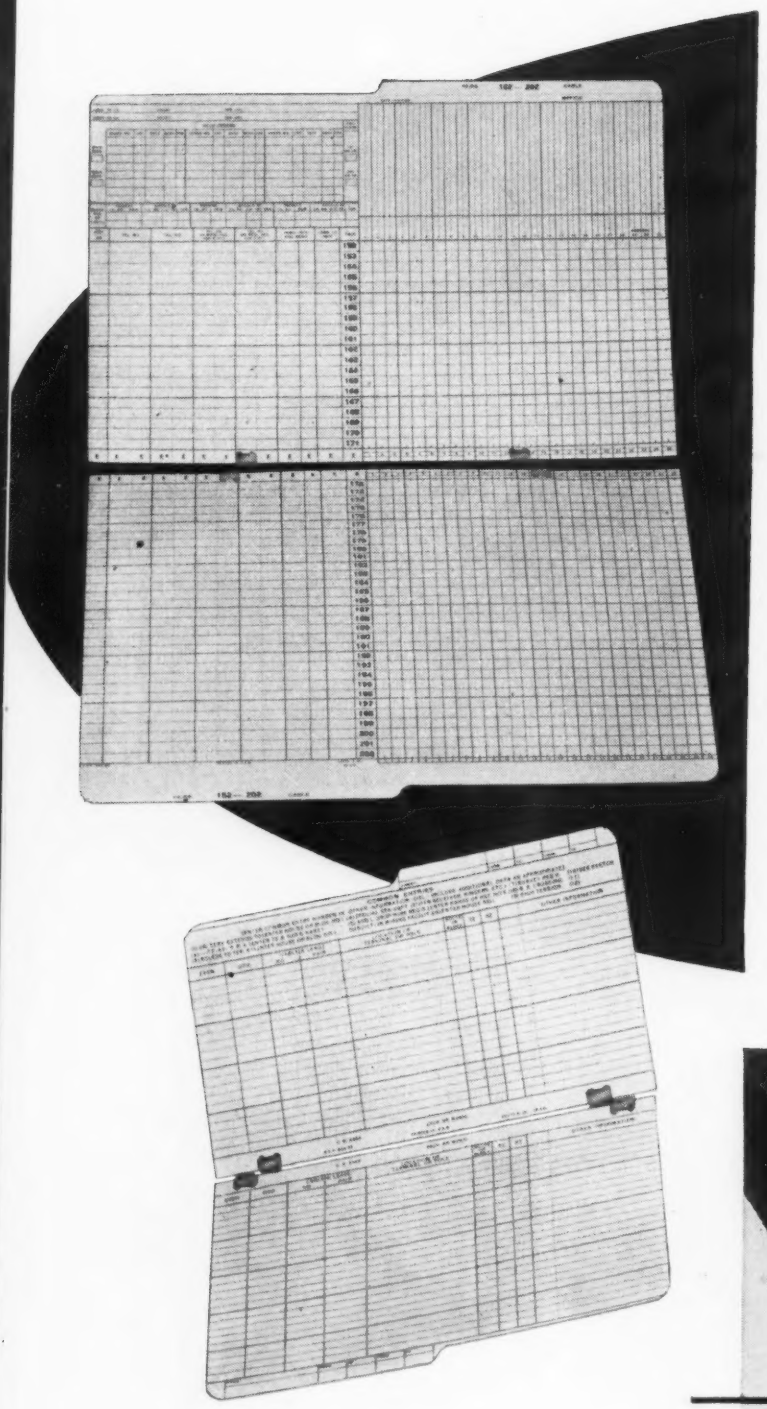
FIGURE 10: — The corner of a supermarket parking lot is a good spot for the outdoor booth.

FIGURE 11: — Outdoor telephone booth serves need of students on university campus. Photo courtesy of Churchill Cabinet Company.

FIGURE 12: — Outdoor booth located outside telephone building to provide service to public. Photo courtesy Churchill Cabinet Co.

ACME VISIBLE

CABLE AND TERMINAL



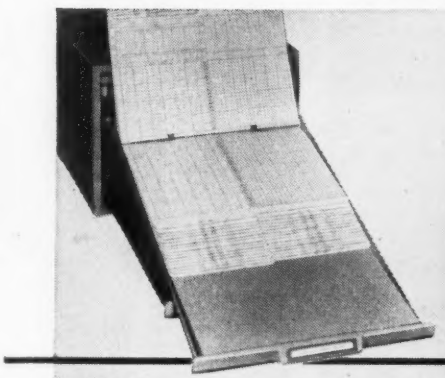
Designed by experienced telephone personnel to accommodate all of the various conditions encountered in the preparation of terminal assignment, exchange subscriber cable, and related basic plant records, in accordance with approved system practices. Simplifies and speeds the work of assignment. Adaptable for large, intermediate and small centers with the flexibility to meet the requirements for peak and normal work loads, varying number of cables, and other local conditions.

CABLE ASSIGNMENTS

Cable assignments forms. With preprinted pair numbers, filed in numerical sequence, exposing a 51 pair complement. Cards are of special Acme Endurex rag content stock to permit repeated erasures and changes. Forms available for 50 terminal capacity and 8 party stations; 44 terminal capacity and 10 party stations; and for unusual conditions.

TERMINAL ASSIGNMENTS

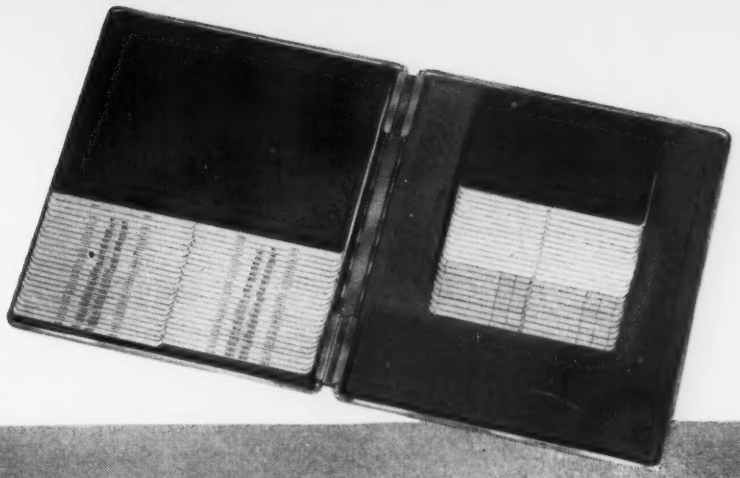
Terminal assignment forms. Eliminate the necessity of referring to supplementary maps to determine the correct distribution cable terminal. Forms available for distribution by (1) street, block or alley; (2) office building or apartment; (3) exchange wire.



Visible cabinets are available in a number of sizes. Each tray has a maximum of 102 forms or the equivalent of 5,100 cable pairs. Cabinets can either be stationary on stands or desks, or mounted on turntables.

Portable stand with sliding shelf, cab assignment book rack holding thre books and three vertical trays for sub scriber line cards. Developed fo smaller telephone offices where on individual handles both cable assign ment and subscriber line cards.

L ASSIGNMENTS

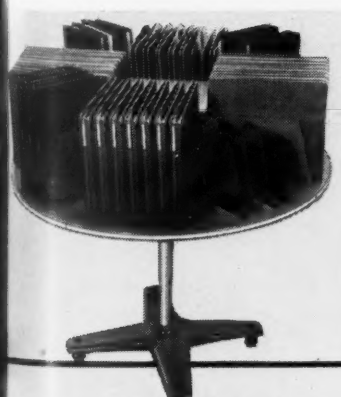


A TOUCH OF A BUTTON BRINGS THE RECORD TO YOU

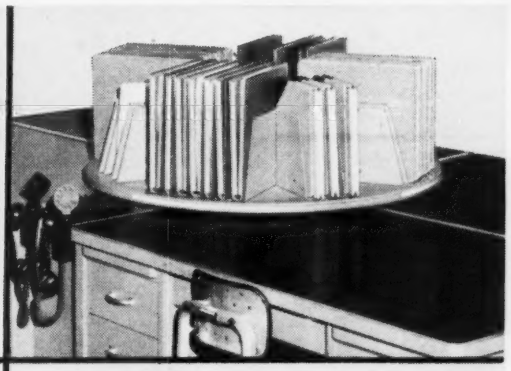
Individuals seated at rotary need not move about to reach records. Books slide in and out without any lifting. Rotaries provide accessability to records at many points around circumference, and permit clerk to do a complete cable throw.

They are designed to house a multiple number of light-weight metal-edged visible books containing many thousands of records.

Motorized Rotary and 6-position Desk Assembly with push-button controls at each position. One of many sizes available for Plant Department Records; Reservation Bureaus; Inventory Records; Records of Shipments; other central-control references and posting requirements.



Rotaries provide tremendous capacity in a compact area and permit instant availability of records to one or more persons. Rotary on pedestal, hand operated and desk height, may be placed next to or between desks, wherever convenient.



This illustration shows rotary placed at the junction of four desks . . . easily available to four persons. Visible card books are filed between spaced divider fins with intermediate divider openings for filing other papers, etc.

Acme Visible equipment has been designed for telephone use by Acme Systems Engineers in close cooperation with practical experienced telephone experts. Tell us your requirements and receive our suggestions and quotations.

S-157

ACME VISIBLE RECORDS, INC.
Telephone System Division, Crozet, Virginia

Please send us illustrated booklet

- ☐ #1088 on Acme Switchboard Keyshelf Units
- ☐ #975 on Acme Flexoline
- ☐ Have representative call. Date.....Time.....
- ☐ We are interested in Acme Visible equipment for .....records
  kind of records

Company.....Attention.....

Address.....

City.....Zone.....State.....

A TELEPHONE ENGINEER OPERATING MANUAL

Outdoor Booths

(Continued from page 44)

outdoor telephone booth locations should be selected for adequate monetary returns, there will be occasions when an outdoor public telephone is needed to provide telephone service without regard to sustained revenue. These might be in housing developments where telephone lines have not yet been extended, locations of occasional events like carnivals and fairs, seasonal locations, such as summer resorts, swimming pools, playgrounds, bathing beaches, ice skating rinks, and parks, locations of charitable institutions and hospitals, and unattended exchange buildings where no room is available for locating a pay station.

In the selected location, the booth should be open to view and not hidden by bushes, trees, signboards, or fences. Good outside lighting is probably as important as good interior lighting and adequate electric signs. Experience indicates that in many instances flood lighting the booths and surrounding areas attracts more patrons and increases the revenue.

The booth should be readily accessible to the public. The approach to the booth should be free from hazards, such as service pits or lifts, street curbs, and broken or uneven sidewalk. Locations where the booth might be damaged by vehicles going by or backing against it should be avoided; otherwise, bumper posts or guard rails should be placed to protect the booth.—*To Be Continued*

A NEW FEATURE

Telephone Engineer's *Operating Manual No. 2* is the 2nd of several operating manuals scheduled for publication in future issues of TELEPHONE ENGINEER & MANAGEMENT. It is the intention of the authors and editors to make each manual a complete treatise on each subject scheduled for this new feature department.

We will be pleased to have your comments and suggestions for future subjects.

Major Problems

. . *(Continued from page 36)*

operations than in the larger exchanges, indicates that in some cases some Independent companies have gotten themselves in serious difficulties.

Generally the commissions are aware of the fact that small exchange operations are higher on construction cost and operating expense per unit than the larger exchanges. There is some offset in wage costs, at the moment, but I don't believe we can depend on the exemption under wage-hour law indefinitely.

The fact that regulatory authorities recognize high costs in small exchange operations is the fundamental reason for the state-wide approach to rate making, which is practically universal in the United States.

The point I would like to make is that when a company gets itself into a situation where the rate base will not support a request for a rate increase, the commissions generally will allow rates that are somewhat comparable to rates for the same size exchange in other parts of the state. However, they can do that with no justifiable reason, according to the investment on the books.

This means that any Independent company that goes to a commission under these circumstances cannot permit any public intervention at all, because if the Commission must make a finding and show a rate of return, in many cases it is out of line.

It is unfortunate that these situations occur, and they are very difficult to adjust. In many cases it forces an Independent company to continue on a low, non-compensatory rate schedule, depending almost entirely upon its toll compensation for existence.

All of us know that the toll element of the business is the most volatile, and at the moment we are enjoying very, very high usage of our toll facilities. This situation can change very rapidly due to economic conditions beyond our control — we have seen it happen many times.

In addition to that fact, at some time in the future it may be necessary to come up with a complete new pricing system for long distance service. All of us know the almost continuous pressure on the intra-inter-state rate differential. Under the present regulatory concepts this differential in toll service is completely justified.

However, as a protection to our public relations, it cannot be allowed to get to a ridiculous differential between the intra- and inter-state rates. In some cases it is almost at that point now. So it seems to me that we may be up against a complete new concept in pricing toll service and a move toward a universal rate schedule all over the United States.

The new U.S.I.T.A. Bell toll settlement agreement recognizes the fact that there are higher operating costs per unit in the small companies. Many companies have placed themselves in such a position that even though its recognized that there are higher costs of operation, the Commission has its hands tied in making a finding which would give the companies added revenue from local exchange service rates.

This should be corrected and not have the inter-toll settlement providing more than its share of the gross income.

Why is it important that this situation be corrected, if it exists? It is extremely important in any financing problems. Banks specializing in loans

to telephone companies give a great deal of weight to the regulatory climate in any state. However, if a company is in a situation where the rate base does not support the present rate schedule, and the schedule is low by comparison, the bank will be reluctant to lend money if it does not appear that rate relief could be granted if necessary.

We are looking forward to inflation in the future as long as our Federal Government believes that the business cycle can be controlled by the manipulation of the Federal debt and the Federal budget. The economy is to be kept under forced draft continually, and if we buy stability in our economy we are going to pay for it with inflation. The point is that we are likely to have repricing problems in the future.

I would suggest that you make comparison of your investment per telephone with other companies in your area, operating under similar conditions. If the comparison indicates you have a problem, I would initiate a discussion with the commission to see if its members would act favorably if they were presented with evidence that an adjustment in the investment should be made. With the knowledge they possess relative to small exchange investment costs, maintenance costs, and financing costs, I feel sure you will get a sympathetic hearing. If you are encouraged after this contact I would get an engineering survey and an estimate of original cost of the plant. If the commission accepts the write-up of the investment I would then get a tax attorney and initiate negotiations with the Internal Revenue Bureau.

These are difficult steps to take, but I feel sure that you will benefit a great deal in the long pull. — *J. W. Heckman*

"Flattery is like perfume—you're supposed to smell it, not swallow it!"

In answer to the requests of many readers we have reprinted L. A. Hodson's articles on *"The Independent Company and Nationwide Toll Dialing."* A booklet containing the entire series (six sections) is available. Cost of the booklet is 75¢ per copy. Send orders direct to *Reader's Service Dept., Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Illinois.*

"Rebuilding The Rural Outside Plant" by John S. Reed. Price $1.50.

In this 70-page book Mr. Reed takes the rebuilding job from the inspection to determine necessary work, through active construction of the plant. Each phase of the work is described and illustrated. Send your order to *Reader's Service Dept., Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Ill.*

LOOK TO THE LEADER . . .

for
• RELIABILITY
• SERVICE
• NATIONALLY KNOWN TELEPHONE SUPPLIES

Prompt delivery of your order as specified is assured by Lindsay's fast, efficient, personalized service. Lindsay specializes in telephone supplies *only* . . . warehousing a complete line of the finest nationally known brands . . . your guarantee of the best as you want it . . . when you want it.

LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO., Est. 1939
10409 Meech Ave., Cleveland 5, Ohio • Telephone Diamond 1-9212

the man who puts himself

In your shoes

Your Automatic Electric Supply Warehouse Manager takes a personal interest in your problems.

Like seeing to prompt delivery of emergency materials. Or working 'way past the "quitting bell" to get a job out. Or passing on a helpful tip he's learned during his day-to-day contact with other telephone men.

He's done it all—time and time again. And it's little "extras" like this that cause so many telephone companies to use Automatic's Supply Service.

You'll find your Automatic Electric Supply Warehouse Manager listed below. Call or write him today. He'll be tickled pink to help you!

AUTOMATIC'S 5 WAREHOUSES:

Chicago 7, Ill.
George Ferguson
1033 W. Van Buren St.
HAymarket 1-4300

Portland 10, Ore.
Ed J. Chok
2360 NW Quimby St.
CApital 3-7244

Kansas City 8, Mo.
Gene Martin
2021 Main St.
HArrison 1-4720

Richmond 21, Va.
"Mitchie" Hester
2915 Moore St.
Tel. 6-9280

Johnson City, N. Y.
Fran Batcher
158 Corlis Ave.
Binghampton 7-8507

Automatic carries a complete line of quality supplies.
You get what you want when you want it.

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

West Coast Tel. Promotes Five to New Posts

SEVERAL promotions have been made recently within the West Coast Telephone Co., according to Ray Dalton, vice president and general manager of the company at Everett, Wash.

Arthur D. Scripture, vice president and general commercial superintendent at Everett has been named vice president in the company's San Francisco office. Mr. Scripture has served with West Coast Telephone and affiliated companies for 23 years. From 1934 to 1947 he held executive positions with the Southwestern States Telephone Co., Brownwood, Texas, and Californoa Water & Telephone Co., Monrovia and San Fernando, Calif. In 1947, after a few months in Everett, he became district manager for the company in Forest Grove, returning to Everett in 1953.

Roy Peterson, general engineer succeeds Mr. Scripture as general commercial superintendent in Everett. Mr. Peterson, who was born in Everett, has been with the company since 1936 except during the years 1940 to 1945, when he served as a Major in the U. S. National Guard and U. S. Signal Corps. He is now a Lieutenant Colonel in the National Guard.

New London's Mayor Makes A Call

WHEN the Northern Ohio Telephone Co. inaugurated dial service at New London, Mayor Rhoad placed the first call over the new system. Watching are Editor REEDIES of New London Record, W. D. HEABLER, former manager at New London, COLONEL WM. C. HENRY, president and general manager of the company, EUGENE REDDEN, district manager, and J. I. ANDERSON, local manager.

Eugene G. Gunther, assistant general plant engineer, has been appointed to succeed Mr. Peterson as general commercial engineer. Mr. Gunther, also an Everett man, has been with the company since 1941 in various plant and engineering assignments.

Eric G. S. Ward has been appointed general plant engineering advisor. He has served the company and its predecessor, Puget Sound Telephone Co., for over 32 years.

Carl Hanenburg, formerly construction supervisor for the Everett district, has been promoted to the position of general plant engineer, after more than 20 years of service in various plant positions.

Floyd M. Cooper Joins Citizens Utilities Corp.

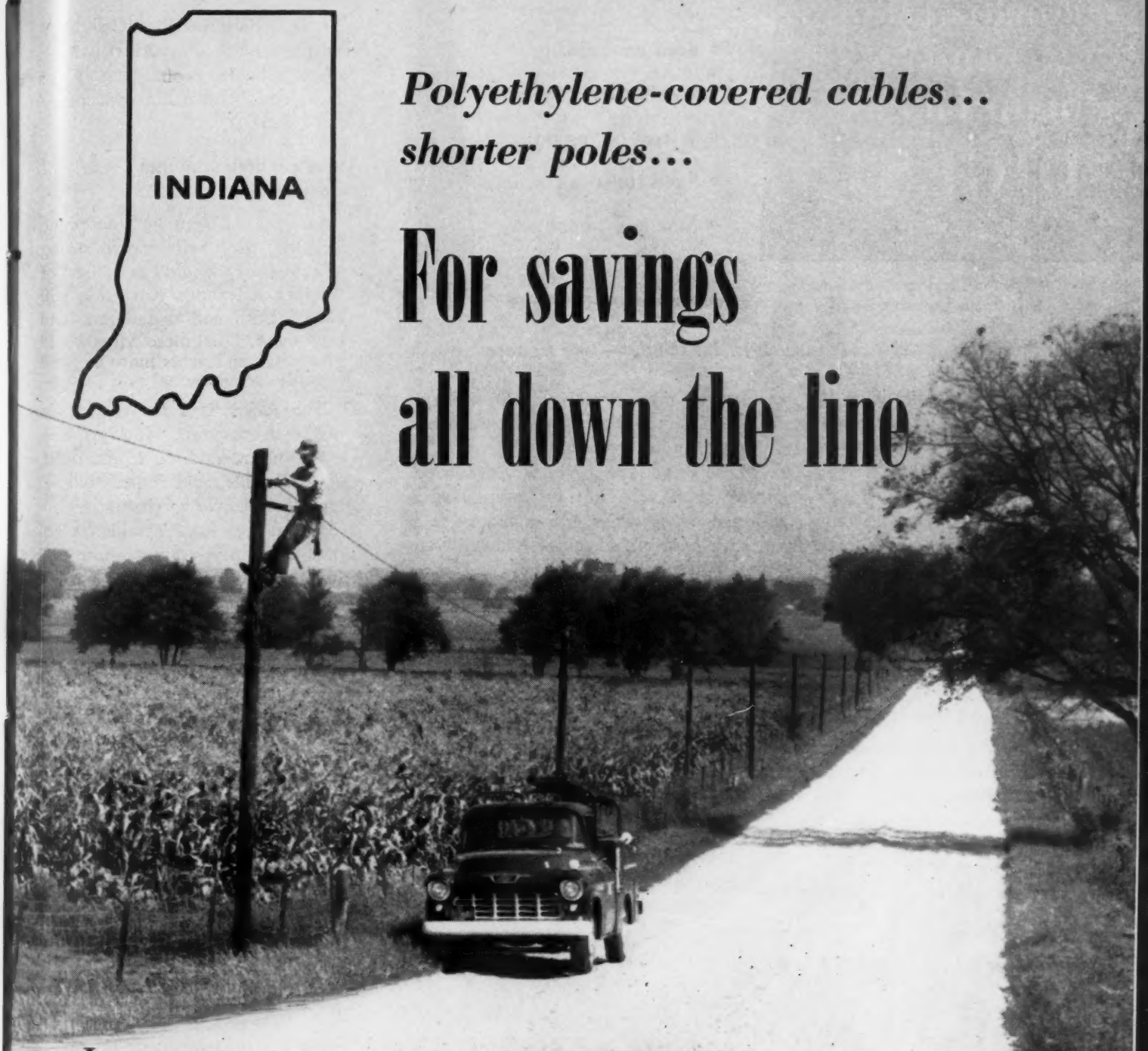
FLOYD M. COOPER, district manager of the Southern Continental Tel. Co., Cookeville, Tenn., for the past nine years, has been named divisional manager of the Citizens Utilities Corp., of California. Mr. Cooper will be headquartered at Citizens' division office at Susanville, Calif.

Before joining Southern Continental, Mr. Cooper was with General Telephone Co., at Georgtown, Ohio, Middle State Utilities Co., at Cameron, Mo., and served with the Army Signal corps in England, Africa, Italy, France and Germany.

Ervin Raus Purchases Oklahoma Exchange

ERVIN RAUS, Pryor, Okla., has purchased the Welch-Bluejacket Tele-

Please turn to page 55



Polyethylene-covered cables...
shorter poles...

For savings all down the line

In this rural Indiana area, the saving in poles is substantial. The light weight of telephone cable covered with polyethylene permits smaller poles, longer spans, faster installations. In many cases, this cable can be strung without a messenger. Splicing has been simplified.

The polyethylene covering has been found highly resistant to ice formation during the sleet storms common to northern Indiana. Where underground installations are made, polyethylene has eliminated the problem of electrolytic action in the soil. In the near future, much of this cable will be plowed underground, at a considerable saving.

These and many other facts about the performance of BAKELITE Brand Polyethylene and Vinyl Plastics are being confirmed in a variety of fields. Other applications, such as signal control cable, utility line wire and service drop, power cable and coaxial cable, are proving their remarkable dependability under a range of operating requirements. These materials meet REA requirements for plastic-covered telephone wire. Also, IMSA specifications for fire alarm and signal control cable; ASA standards for weatherproof wire; and ASTM D1238-52T Type II, dielectric materials.

Developments in the use of BAKELITE Brand Polyethylene and Vinyl Plastics for wire covering are reported extensively in Bakelite Company technical publications, available without cost. To keep up-to-date, write Dept. QA-183.

BAKELITE BRAND **PLASTICS**

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

construction and maintenance DIGEST

- **Real cool sitting**
- **25-year battery**
- **Wires' Shangri-la**
- **Save three ways**
- **New and phenolic**

Published regularly to help you get the most out of your materials and supplies dollar

by Ernest P. Riviere, Jr., Inside Sales—San Francisco

The other day I chalked up my 5th year with Stromberg-Carlson—but one of the orders I filled that day made me feel pretty much a youngster in the business: I sent out a battery we promise will serve you for 25 years! That started me thinking about other equipment we supply. Here, the guarantee is a quarter century—there, it's for life, **period.** And always, the guarantee is a double one—ours, and the maker's. It made me realize again how much your orders mean to the science of telephony. It's your supply business that helps us continue our research for ever-better, ever-longer-lived telephone equipment. Thanks a lot!

Cane-seat chair keeps operators cool, comfortable

Making the operator as comfortable as possible may not strike you as a "maintenance" problem — yet your service is much smoother when the girls are cool and relaxed.

This operator's chair has a cane seat, which is much cooler, cleaner and more comfortable than other types. It retains all the posture advantages for which Sturgis is famed. It is called the Sturgis SC-240.

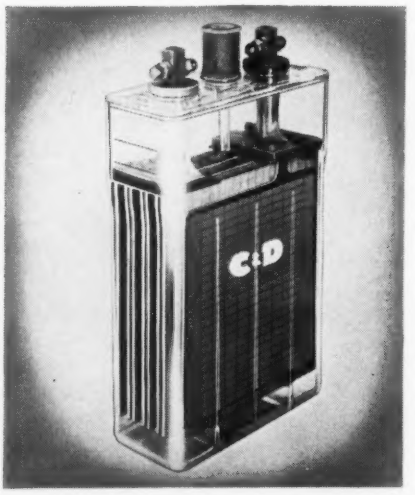
The posture-curved, well-cushioned backrest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Other new and welcome features include a plastic-coated steel foot ring which retains its color, and a handy purse holder, available on request. Six seat heights, all adjustable.

Battery will live 25 years

A quarter of a century is the expectancy of an extra-life battery made by C & D Batteries, Inc. In full-float service, their PlastiCal (lead calcium grids) battery will serve your power needs faithfully —often well beyond its 25-year expectancy.



It'll be 1982 before you even have to *think* about replacing this extra-life C & D battery, if you install it now!

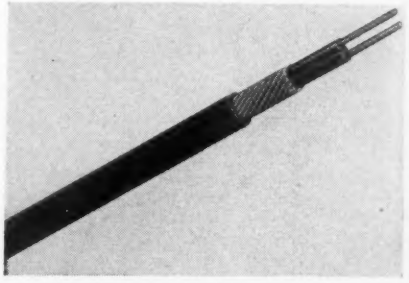
C & D Batteries' PlastiCell (high tensile, special alloy grids) battery offers reliable power supply at lower cost, with a life expectancy of 14 years.

Here's a drop wire that hides its age

Samples of Teleprene® (neoprene jacketed) drop wires were strung where they would get lots of weather. After nine years, they still looked fresh and undaunted—and tests showed that these wires would give years and years **more** of good service!

The jacket is a tire-tread type neoprene compound which provides excellent resistance to sunlight, abrasion, oils, acid fumes, alkalies and other corrosive chemicals.

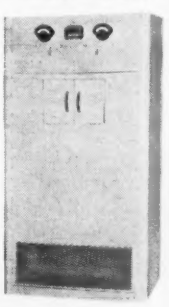
Conductors have Teleplate coating: lead, to resist corrosion, and brass plating over the lead, to provide enduring adherence of the high quality buna rubber insulation to the conductor.



Available in parallel (shown here), twin parallel and twisted pair types.

Battery charger pays for itself, saves 3 ways

If you're interested in saving money, and still keeping up a good supply of battery power, here is real help for you. It's the Flotrol three-phase automatic constant voltage battery charger manufactured by Lorain Products Corporation.



Charger provides constant voltage, no moving parts.

You save power. Whether charging current is heavy or light, the Flotrol maintains an exceptionally high efficiency. For example—even as low as 10% of its rated load, the Flotrol

operates at 50% efficiency! Often, power savings pay the full cost of the Flotrol.

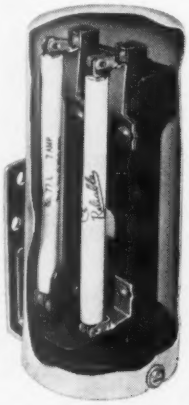
You save maintenance. With no moving parts, you don't have to lubricate or replace any worn components. You simply install the Flotrol and forget it.

You save your batteries, too. By providing a constant voltage, the Flotrol keeps your batteries fully charged, yet prevents overcharging. If a heavy overload is placed on the Flotrol, the output current is limited to a value which will not damage the battery or the Flotrol.

Easy to install, too. Just move the cabinet into position, and make five connections at conveniently located terminals (3 AC power leads, 2 DC charging leads). Then turn on the switch.

New Design Station Protector

For a station protector with really new features, specify the Reliable Series 2000 Protector.



All metal parts are bronze, aluminum or stainless steel.

This new protector replaces the Series 1000—and only the time-proved Reliable Discharge Blocks remain unchanged. Quality and performance are better than ever.

The new protector comes with a phenolic fuse mount (rather than porcelain); a flexible neoprene base with integral wire entrance sealing slots (instead of open wire holes); and a redesigned fuse mount and terminal post that permit putting wiring snugly in place without removing fuses. The fuse mount can be easily reversed to wire from right or left.

Distributed by

STROMBERG-CARLSON

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 6, Chicago 6, Kansas City 8, Rochester 3, San Francisco

(Continued from page 52)

phone Exchange from Mr. and Mrs. George Bennett. The new owner was employed for 33 years by Southwestern Bell Telephone Co. The Bennetts had operated the exchange since May, 1954.

Dial System Planned For Cornersville, La.

CORNERSVILLE (La.) Telephone Co., Inc., announced last month that construction has begun on its new outside plant and that a dial central office will be erected.

Officials of the firm said the new lines will extend to areas heretofore without telephone service.

Judge Reverses Commission On North Carolina Ruling

SUPERIOR Court Judge L. Richardson, Preyer, Greenboro, N. C., has announced his decision reversing the order of the North Carolina Utilities Commission in the controversy between the Randolph Telephone Membership Corporation and REA Telephone co-operatives.

The court ruled that the commission had the authority to determine whether or not to order the Central Telephone Co., to enter the proposed service area of the co-operative. However, Judge Preyer held that the commission committed an error in order-

Please turn to page 58

"20,000th Telephone"

THE 20 THOUSANDTH telephone installed in Elyria, Ohio, was an ivory handset bearing a silver plate designating the instrument as the one which marked this mile post for The Elyria Telephone Co. It was installed in the new home of Mr. and Mrs. Richard Foglyano, while Mayor J. Grant Keys and Richard Choat, president of the Chamber of Commerce, in addition to several company officials, looked on. Weldon Case (left) is shown presenting the telephone to Mrs. Foglyano.

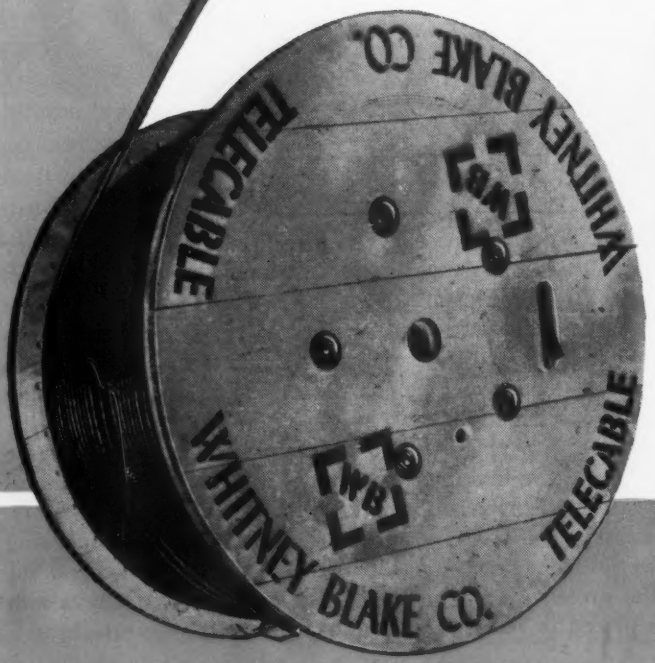
It took fifty three years to reach the 10 thousandth telephone while the second 10 thousandth came in less than ten years. From present surveys and forecasts, it is expected that the 30,000 mark will be reached in five years. Elyria is one of the fastest growing cities in its class in the country, imposing on the company the problem of keeping up with the increased demand for service. To meet the present and future telephone needs of the city a new dial system will be placed in service next summer.

Buy Right Now and . .

SAVE for YEARS

WITH WB

TELECABLE®



THE STANDARD FOR QUALITY AND SERVICE

WB

WB has that which others have yet to gain . . . EXPERIENCE

HERE ARE A FEW of the many ways in which you save with WB TELECABLE . . .
First its tremendous resistance to the effects of moisture. Even if the sheath should become damaged, the non-hygroscopic construction throughout prevents absorption of water . . . a great saving in manpower and money.
In addition the light weight of WB TELECABLE permits the use of smaller poles, smaller messenger, lighter hardware . . . all savings of considerable value . . . and freight costs are reduced too.
Another great advantage offered by WB TELECABLE is appreciably lower capacitance unbalance (lower cross talk level).
Like all Whitney Blake products, WB TELECABLE is of the highest quality which means longer service life and lower maintenance costs, providing savings for many tomorrows in the years to come.
INDEPENDENT
Well Built Wires Since 1899
©1957
WHITNEY BLAKE COMPANY

(Continued from page 55)

ing extension of service by the telephone company under the circumstances of the case.

The court found that the Utilities Commission committed its fundamental error in failing to give recognition to the existence of the rural telephone co-operative and to the service which the co-operative is rendering and preparing to render and in failing to give effect to the REA Telephone Act.

The issue, closely watched by other membership and telephone companies throughout the state, began last March 20 when seven Randolph petitioners asked the Utilities Commission to require Central to furnish them with telephone service.

The commission, in its order Aug. 20 found that it had jurisdiction over Central but not over the membership corporation, since the co-operative was not a public utility.

The commission also found that it can order Central to provide service and that the agreement between Central and the membership organization — allocating areas to be served — was not binding because the commission had not approved it as to Central's part.

The commission then ordered Central Telephone, as a matter of public convenience and necessity, to furnish the petitioners with service as soon as reasonably possible.

Judge Preyer declared that two basic issues were involved: Whether the commission had the jurisdiction to order Central to invade the membership corporation area and whether that jurisdiction was properly exercised.

As to the jurisdiction, he found that the membership firm has no exclusive territory in law and is protected until a utility is ordered to invade it. The Commission's ruling was reversed on Judge Preyer's finding that the jurisdiction was not properly exercised.

E. H. Krueger Named Ohio Commission Chairman

EVERETT H. KRUEGER, JR., has been named for a 6-year term as chairman of the Public Utilities Commission of Ohio by Governor C. William O'Neill.

Krueger, 37, former first assistant attorney general and for two and one half years the commission's chief counsel, succeeded Robert L. Moulton of Galion, Ohio.

Krueger is a native of Cleveland, Ohio and his father, Everett H. Krueger, Sr. was a previous utility director of the City of Cleveland.

Other commission members are Ralph A. Winter of Lodi, a Republican, and Edward J. Kenealy, of Cleveland, a Democrat.

THE SANTA MONICA BAY GIRL SCOUT COUNCIL of Santa Monica, Calif., kicked off the 1957 Cookie Sale recently in the lobby of the general office building of General Telephone Co. of California when employes of the company ordered 100 boxes from the girls to help provide funds to develop camp sites in the surrounding Santa Monica area.

USITA Plans 60th Anniversary Celebration

THE YEAR 1957 is an important anniversary for the Independent telephone companies of America and for the United States Independent Telephone Association (USITA). Although Independent companies were in existence prior to 1897, it was 60 years ago in 1897 that the national Association was given birth, and Independent telephone companies became organized and recognized as an industry.

To arrange for a proper celebration of this historic milestone, a Diamond Jubilee Committee has been appointed by President Donald C. Power. Its members are Carl D. Brorein, chairman; Thomas A. Boyd, and Richard A. Lumpkin. The committee recently met and launched a program of some interesting activities. On or about May 1 a suitable proclamation will be issued by President Power designating a specific period later in the year as "Independent Telephone Week."

The proclamation will be embellished with fine printing and will be distributed to all *USITA* member companies. Wide publicity will be given to the observance, which offers splendid tie-in advertising and publicity opportunities to all units and ranks of Independent telephony, including operating companies, manufacturers, suppliers and related firms, state telephone associations, and Pioneer groups.

These various groups have been requested to refer to the Anniversary in their bulletins, house organs, and other publications. Association Mem-

ber Letters and other mailings now carry at the bottom the following: "60 Years of Independent Telephony, 1897-1957," and each envelope which goes through USITA's postage meter is inscribed with the same words in red ink. All companies are requested to make similar arrangements, and manufacturer and supplier and related firms are asked to refer to the Anniversary in their local and national advertising. Suitable reference to the Diamond Jubilee Anniversary will be woven into the Association's national magazine advertisements.

Among other activities which can effectively be undertaken in order to achieve suitable publicity and stimulation of public interest during "Independent Telephone Week" are the following: open houses by Independent companies; local publicity, including appropriate pictures in newspapers; telephone company speakers at service clubs in Independent territory; a limited number of free long-distance telephone calls at open houses; use of voice recording playbacks at open houses, and dial conversions.

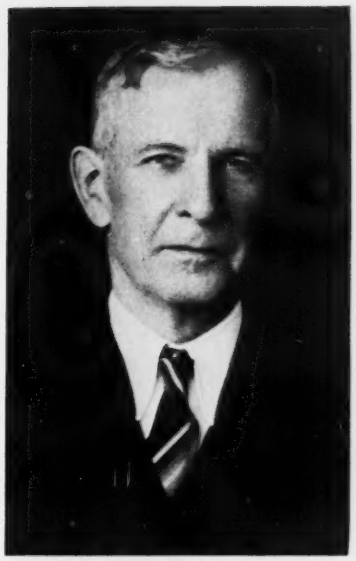
The crescendo of the 60th Anniversary celebration will come at the annual USITA convention in Chicago in mid-October. Manufacturers and suppliers will be asked to include in their convention exhibits pieces of equipment used in earlier eras. A special exhibit of museum equipment pieces contributed by individual manufacturers is planned for the lobby of the Conrad Hilton Hotel, or in the convention hall during the time the convention is in progress. An invitation will be extended to President Eisenhower to address the 1957 convention. If he cannot be present, the invitation will be extended to some member of his Cabinet, or a representative designated by him.

Other plans will be added as they develop, and all concerned will be notified regarding them from time to time. So far, response to the program has been enthusiastic.

Hiram D. Fargo, Sr., Dies

HIRAM D. FARGO, SR., 88, vice president and treasurer of Telephony Publishing Corp., Chicago, died February 12 in St. Francis Hospital, Evanston.

Mr. Fargo started his career in 1885 when, at the age of 17, he entered the newspaper business in his home town of Ionia, Mich. In the next four years he had served on the staff of the Santa Ana (Calif.) *Blade* and had returned to the Middle West as a reporter on the old Chicago *Evening Post*. He served the *Post* as Washington correspondent and political editor from 1894 to 1900.



HIRAM D. FARGO, Sr., 88, vice president and treasurer of Telephony Publishing Corp., Chicago, dies February 12.

"Senior," as Mr. Fargo was known to his many friends, joined Telephony in 1907 as secretary-treasurer and co-editor. In 1919 he became president and held that position until 1941 when his son Hiram, Jr., succeeded him as president.

In January of this year Mr. Fargo observed the 50th anniversary of his service with *Telephony*. In an editorial tribute — "Congratulations, Senior," the January 19 issue of *Telephony* stated — ". . . even today at the age of 88, 'Senior' rarely misses a day at his office carrying on his duties as vice president and treasurer. He can be seen at his desk every morning, staying till the close of business and still lending his guiding hand, the twinkling eye, and the ready laugh of his quiet and courteous good humor to the effective management of a busy magazine . . ."

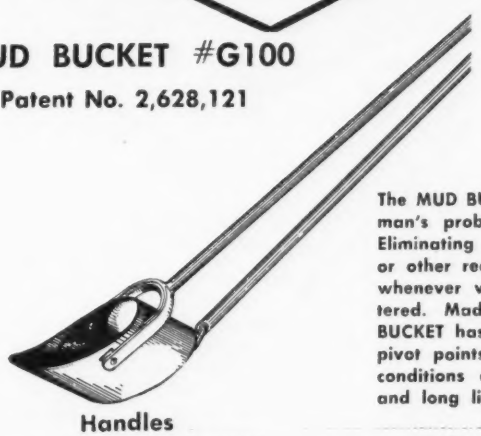
Mr. Fargo was a member of the Independent Telephone Pioneer Association, the Union League Club and

Please turn to page 62

GENERAL MACHINE PRODUCTS COMPANY, INC.
7th & Wood Sts.
Philadelphia 6, Pa.

Aerial Tents
Cable Benders
Cable Blocks
Cable Lashers
Coaxial Cable Tools
Lashing Wire Clamps and Grips
Portable & Power Reels

MUD BUCKET #G100
Patent No. 2,628,121



The MUD BUCKET is the answer to the utility man's problem when the going is tough. Eliminating the makeshift lard cans, buckets or other receptacles which have to be used whenever water, mud or slush are encountered. Made of sturdy aluminum, the MUD BUCKET has mechanical steel bushing on all pivot points. Tested under the most severe conditions and has proved to be durable and long lived.

Handles	8 ft.
Bucket Capacity	5 Qts. liquid measure
Overall length	9 ft. 1 in.
Weight	8 lbs. 4 oz.

Distributed by Graybar

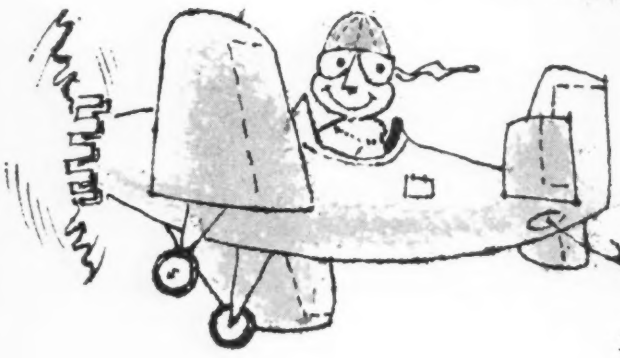
Special Purpose Tools To Specifications
Literature on Request

Over 450 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate Shipment

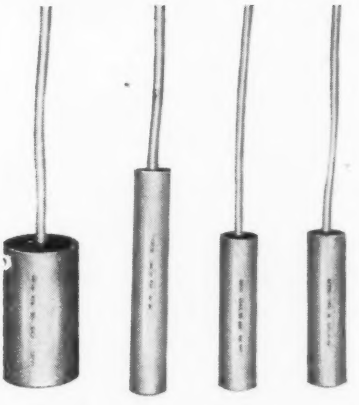
SPECIALIZED COMMUNICATIONS EQUIPMENT SINCE 1918

GMPCO

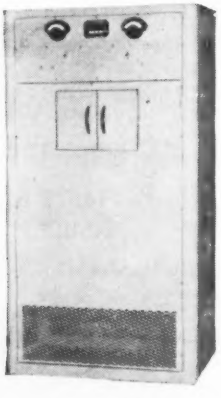
IT'S KELLOGG FOR



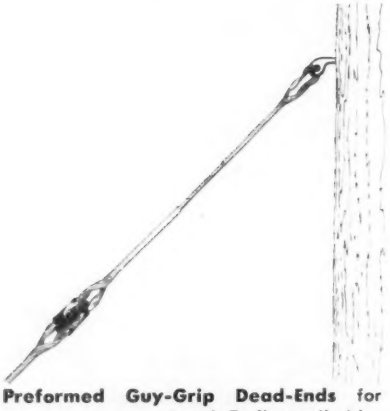
You're sure of top-flight quality with Kellogg line supplies . . . every item has been put through the most rigid performance tests and delivery is fast . . . Kellogg has 7 warehouses and more than 100 distribution points across the nation.



Application of Loading Coils on telephone circuits reduces unit loss to ⅓ or ¼ the nonloaded value—coils are designed for use on 2-wire telephone circuits in nonquadded paper insulated or plastic cable. COMMUNICATION EQUIPMENT & ENGINEERING CO.



Self-Contained Unit—The 3-phase Flotrol Automatic Constant Voltage Battery Charger has no moving parts—all components in one cabinet. No separate units to install. Designed for plants requiring 25 to 400 amps charging capacity.
LORAIN PRODUCTS CORPORATION.



Preformed Guy-Grip Dead-Ends for messenger or guy strand. Easily applied by hand. Will hold full rated strength of even extra high strength steel strand. Will not slip. Can be applied to the cut end or coiled end of the strand. Available in galvanized steel, bronze, copperweld and stainless steel. PREFORMED LINE PRODUCTS COMPANY.

Wire Terminal offers new simplicity in connecting single pair between drop or bridle wire, and RD or urban distribution. No need to cut RD wires when connecting—merely skin and terminate. Long-life, flexible, neoprene, weathertight cover, stainless steel mounting clamp, and ruggedly molded phenolic body. Made by RELIABLE ELECTRIC COMPANY.

KELLOGG BRANCH WAREHOUSES AND OFFICES:

6000 W. 51st Street
Chicago 38, Illinois
REliance 5-5445

4501 Truman Road
Kansas City 1, Missouri
Humboldt 7085

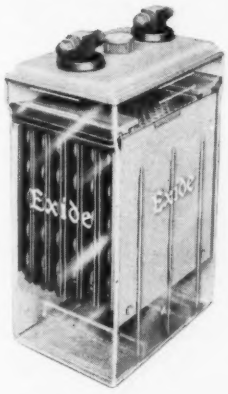
23 Broderick Road
Burlingame, California
OXford 7-5780

410 N. Syndicate Ave.
St. Paul, Minnesota
Nestor 5873

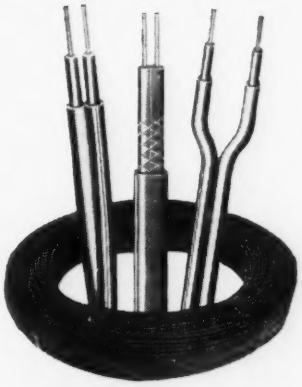
1515 Turtle Creek Blvd.
Dallas 2, Texas
Riverside 7-5191

1555 West Fourth Street
Mansfield, Ohio
Mansfield 7-2816

TOP-FLIGHT LINE SUPPLIES

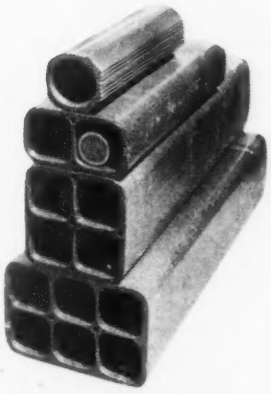


The Battery That Stays Young for Years. Built right into the Exide-Manchex Battery is a reserve supply of lead that converts automatically to active material as it's needed during the battery's long life. Hence, it keeps its full capacity for years. Exide Industrial Division, THE ELECTRIC STORAGE BATTERY COMPANY.

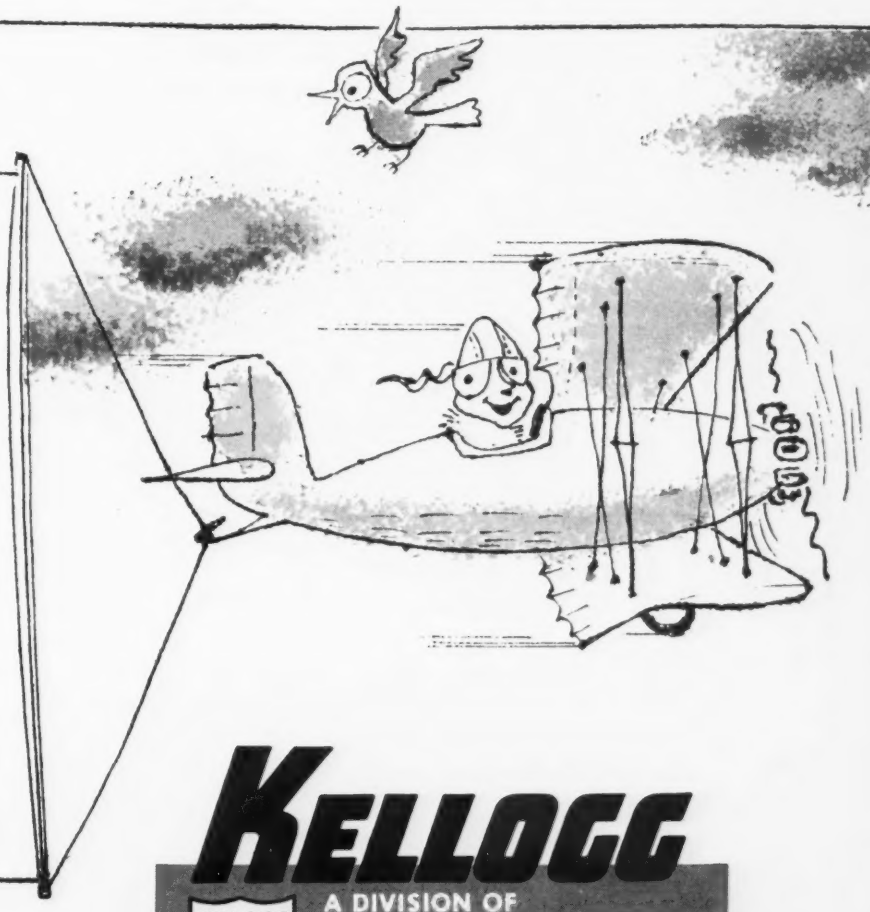


Long Service Life and Low Plant Costs go hand in hand with the installation of ENDURPRENE — The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible and easy-to-handle wire is made by GENERAL INSULATED WIRE WORKS, INC.

Save Three Ways . . . on materials, manhours, and maintenance with INDIANA STEEL & WIRE CO.'s Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing Process, protected with heavy ductile coating of zinc.



Single and Multiple Natco Clay Conduit for the permanent protection of underground telephone and telegraph cables against fire, corrosion, electrolysis, mechanical injury, and chemical attack. Available in 1, 2, 3, 4, 6, 8 and 9 duct sizes—salt glazed or unglazed. A product of NATCO CORPORATION.



KELLOGG

KELLOGG A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

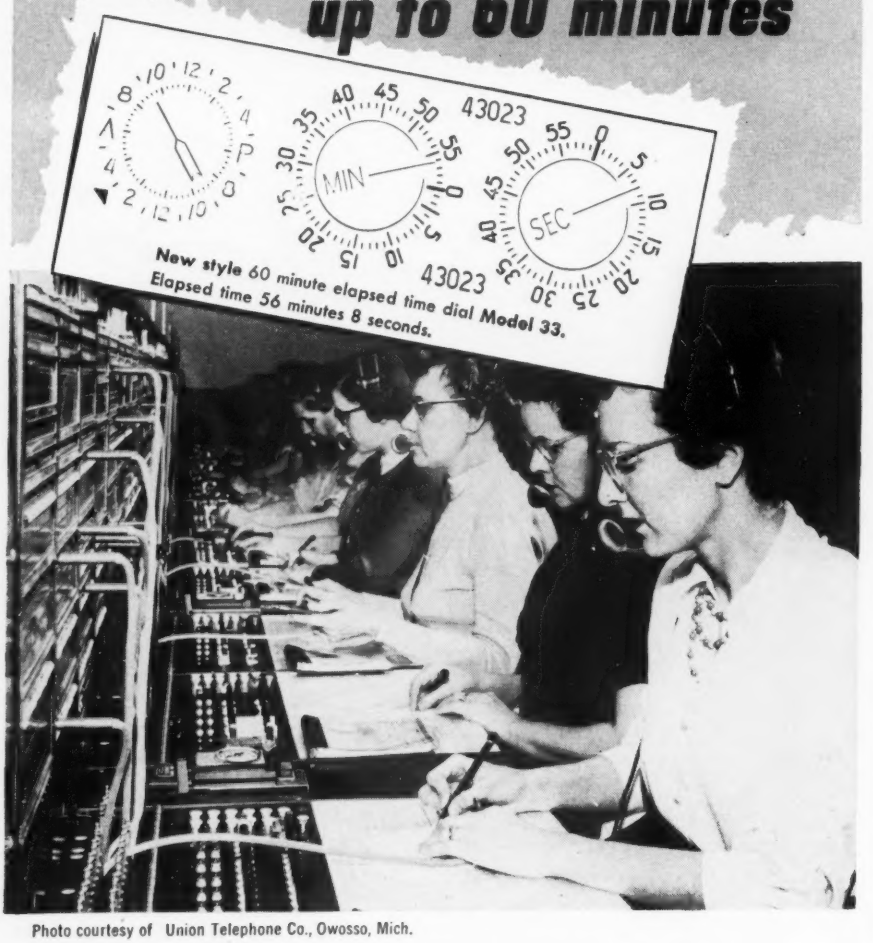
A DIVISION OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

SALES OFFICES: 79 West Monroe Street, Chicago 3, Illinois

84 Southland Circle, N. W.
Atlanta, Georgia
Dramore 4-2441

CALCULAGRAPH

Now Automatically gives you accurate Toll Call Records— up to 60 minutes



New style 60 minute elapsed time dial Model 33. Elapsed time 56 minutes 8 seconds.

Photo courtesy of Union Telephone Co., Owosso, Mich.

Now, Calculagraph, the modern dependable computer, automatically figures and prints toll calls up to 60 minutes —no need to add 30 minutes on long conversations.

Thus, Calculagraph adds one more feature to reduce human errors by busy operators and increases the volume of calls handled per operator. Assures you of all revenue due on every call.

For accurate toll call records, for automatic computation of elapsed time, for more efficient operation, install the new 60-minute elapsed time Calculagraph on your switchboard.

Information on this new Calculagraph is yours upon request.

Write today for illustrated brochure to Dept. TM

CALCULAGRAPH Company

HARRISON, N. J.

DEPENDABLE ELAPSED TIME COMPUTERS SINCE 1892

(Concluded from page 59)

the Chicago Press Veterans' Association.

Surviving, besides his son Hiram, Jr., are three grandsons, a granddaughter and four great grandsons.

Dundee Tel. & Tel. Closes 25-Year, 1st Mortgage Loan

DUNDEE TELEPHONE & Telegraph Co., Dundee, N. Y. has closed a Twenty-five Year First Mortgage loan in the amount of $135,000 with Berkshire Life Insurance Co., Pittsfield, Mass.

Proceeds of the loan are being used to refund debt and to fund notes payable incurred for property additions.

The loan was Berkshire's 48th piece of Independent telephone financing.

General of S. E. Names Griffith to New Post

L. A. GRIFFITH, formerly of Bluefield, W. Va., has joined the engineering staff of General Telephone Co. of the Southeast as a central office equipment engineer, reporting directly to R. Rummelt, general equipment engineer.

In his new position Mr. Griffith will assist in performing the equipment engineering for telephone exchanges of the group companies located in Tennessee, Virginia, West Virginia, Georgia and South Carolina, as well as North Carolina, and will conduct his operations from the company's Durham, N. C., office.

A native of West Virginia, Mr. Griffith spent more than 10 years in telephone central office equipment installation work throughout the United States prior to joining the Army Signal Corps where he served during the second world war.

Sylvan Lake Tel. Closes $175,000 1st Mortgage Loan

SYLVAN LAKE Telephone Co., Hopewell Junction, N. Y. has closed a Twenty-five Year First Mortgage loan in the amount of $175,000 with Berkshire Life Insurance Co., Pittsfield, Mass.

Proceeds of the loan are being used for refunding of debt, plant additions in connection with extended area service, and additional working capital.

The loan was Berkshire's 49th piece of Independent telephone financing and its second loan to Sylvan Lake.

VEST POCKET NON-RESIDUAL
CONTACT BURNISHER

WITH 6 REPLACEABLE BLADES

Handy, practical. Dielectric black plastic barrel and cap permits working safely on "live" contacts. 4¼" long x ⅜" diameter.

No. CB-5—with 6—.007" thick blades $3.80
No. CB-54—with 6—.004" thick blades $3.95

Reservoir for extra blades.

Prompt Shipment

P. K. NEUSES, INC.
1205 W. Euclid Ave., Arlington Heights, Ill.

S. W. Bell Reduces Rates To Fringe-Area Customers

SOUTHWESTERN Bell Telephone Co., has been authorized to reduce rates to 1,522 customers in fringe areas surrounding eight Kansas towns by $7,111.80 annually, a Kansas Corporation Commission spokesman said last month.

KCC chief engineer Lloyd Shank said the reduction, made at the company's request, was done by including the outlying patrons in the base rate area. They previously have been charged mileage rates for calls.

The locations of the reductions, number of customers affected, and the amounts are:

Salina, 331 customers, $871.20; Colby, 30 customers, $143.40; Olathe, 230 customers, $572.40; Bonner Springs, 45 customers, $120; Valley Center, 107 customers, $345; Manhattan, 198 customers, $631.80; Pratt, 32 customers, $258; Kansas City, 549 customers, $4,170.

The KCC also permitted Southwestern Bell to take over seven square miles of previously unassigned territory adjacent to the Leavenworth-Lansing exchange.

M. C. Diefendorf Joins General of Kentucky

MARVIN C. DIEFENDORF has been appointed public relations director of General Telephone Co. of Indiana.

Prior to his new assignment in the Indiana company, Mr. Diefendorf has been public relations assistant at General Telephone Co. of California.

During World War II he was assigned to the Eighth Air Force in Europe, seeing action in Africa, England and Germany.

Mr. Diefendorf will make his headquarters at Fort Wayne.

Professional Services

Save Money and Time!
TOLL TICKETS
1-LOUT on Bond Paper
ONLY 40¢ THOUSAND (MIN. 20,000)
TELEPHONE PRINTING SPECIALISTS FOR 49 YEARS
TELEPHONE 42-3341
CULLOM & GHERTNER CO.
PRINTERS • LITHOGRAPHERS
600 21ST AVE., N. • NASHVILLE, TENN.

HARRIS-McBURNEY CO.
PUBLIC UTILITY CONSTRUCTION
A complete construction service for the telephone industry
Construction Crews — Engineering
Station Installers — Appraisals & Reports
Cable Splicers — C. O. Installation
Underground Duct Systems
Telephone ST 4-6126
P. O. ox 267 — Jackson, Michigan

EVERT M. OSTLUND
Planning — Engineering — Development
Radio and Microwave — Telephone
Installations, Systems, Equipment
Lake Mohawk 8635 — Andover, N. J.

CARL C. CRANE, INC.
Consulting Engineers
2702 Monroe Street, Madison 5, Wis.
Telephone CEDAR 3-4210

Davis Construction Co.
UTILITY PLANT CONSTRUCTION
45 North Clark Street • Sullivan Missouri

TELEPHONE PRINTING
By People Who Know the Telephone Business.
See the Suttle Catalog
SUTTLE EQUIPMENT CO.
LAWRENCEVILLE ILLINOIS

INSPECTION SERVICE
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consulting and specification writing. Inspectors stationed throughout the U.S.A.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
Established 1921 — Member A.C.I.I.

ACCOUNTING & AUDITING SERVICES
Available to All Class A, B, & C, Telephone Companies Anywhere
Write: Frank M. Clark
Telephone Accounting Services
3969 Ruckle St., Indianapolis 5, Indiana.

NEALE CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

Let A Low Cost PROFESSIONAL AD In Telephone Engineer & Management Do The Job For You

JAY G. MITCHELL
CONSULTING ENGINEER
APPRAISALS—COSTS—PLANT
7720 SHERIDAN ROAD CHICAGO
FOR MAIL BOX 523 EVANSTON, ILLINOIS

BUYERS' GUIDE

ADVERTISING. Directories — *General Telephone Directory Co., 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 3]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 4]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 5]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 6]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 7]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 26, Minn.* —[ADV. 8]

POLES, Southern Yellow Pine — *Taylor Colquitt Company. 217 E. Main St., Spartanburgh, S. C.*—[ADV. 9]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 10]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 11]

REBUILT TELEPHONES & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 12]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 13]

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., New Brunswick, N. J.*—[ADV. 14]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 15]

A TE&M Service Department

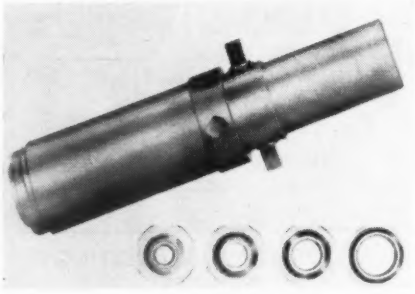
NEW PRODUCTS

HERE'S THE latest information on — (1) New "Speed Thru" Nipple Chuck; (2) new highway digger; (3) numbering and lettering kit; and (4) a reactance slide rule. To obtain data on New Products or Services described in the Buyers' Guide use Reader's Service Coupon, on page 65.

Conduit Nipples

CONDUIT NIPPLES can be made quickly on the job with either hand threaders or power drives thru the use of the new "Speed-Thru" Nipple Chuck announced by Mercury Hydraulics, Inc.

The manufacturer claims that the patented new chuck is the only tool on which nipples of any length can be made with all threaders that are



adjustable to 2". Due to the exclusive movable sleeve guide ,there are no "dead spots" to prevent threading to any pre-determined length, fractional or otherwise.

"Speed-Thru" Nipple Chuck operation is described as requiring three steps. First, thread one end of any pipe, or pipe remnant of the desired diameter and cut to the required length. Second, clamp the nipple chuck in either a vise or power drive and screw the "bald" nipple into the holding bushing. Third, with threader guides opened to maximum, thread in the usual manner, then release the holding cam and the finished nipple will unscrew by hand.

The chuck is further described as precision machined with all wear parts made of hardened steel. During service tests, according to the manufacturer, one chuck was used to make over 2,000 nipples of all sizes, without any wear defections.

Each nipple chuck comes packed in a heavy guage metal tool box with holding adapters from ½" to 1½" diameters. Two inch diameter nipples thread into the chuck body for holding. ⅛", ¼" and ⅜" adapter bushings are optional. Overall length of the chuck is less than 10 inches. The chuck will also be available with adapters for British Standard Pipe Thread. — For compete data, *Check New Product* 115.

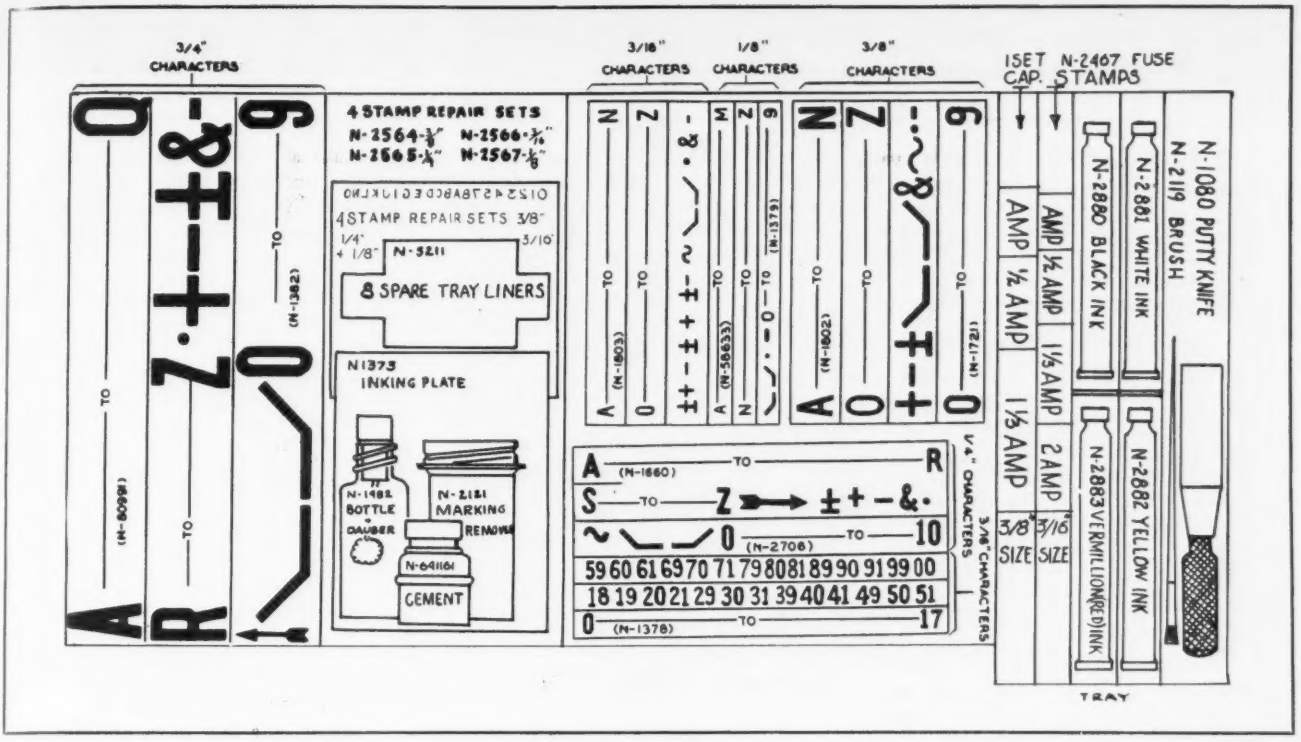
Heavy Duty Digger

A NEW heavy-duty highway digger has been announced by the Roper Manufacturing Co. a leading producer of farm-type post hole diggers.

The new Roper Highway Digger digs to the 48" required depth for setting post and guard rails, with

augers available to 14" diameter. It is easily mounted on tractors generally used for mowing brush and weeds along highways.

Standard equipment on the new



New numbering and lettering kit.

digger includes a slip-clutch Universal joint, 3/8" spiral flighting with hardened long-wear edges, and a specially hardened "fish-tail" point for fast penetration.

The manufacturer guarantees all power gears in the unit for 10 years, complete unit one year. — For complete data, *Check New Product* 116.

Numbering & Lettering

P. K. NEUSES, INC., has announced the availability of a kit for laboratory, specialty department, or for "in the field" use, for marking switchboard panels and other electronic assemblies.

This kit contains: A wide variety of Peg rubber stamps in sizes of 3/4", 3/8", 1/4", 3/16" and 1/8". Stamps are A to Z, numbers and symbols as illustrated, and fuse capacity stamps 3/8" and 3/16".

It also contains Peg rubber stamp repair sets and rubber to wood cement for repairs; tubes of heavy opaque stamping inks, special formula for marking practically on background material in colors of red, yellow, white and black.

Also included are inking plate, knife and brush for spreading ink, fluid and equipment for cleaning inking plate, peg stamps and unwanted markings. The kit is housed in sturdy steel carrying case 12¾" long, 7½" wide, 5" deep. — For complete data, *Check New Product* 117.

Reactance Slide Rule

SHURE BROTHERS, INC. has announced that, due to a continuing demand by engineers, technicians and students, its Reactance Slide Rule is again available.

The slide rule simplifies calculations of resonant frequency, capacitive reactance, inductive reactance, coil "Q," and dissipation factor problems covering a frequency range from 5 cycles per second to 10,000 megacycles. — For Complete Data, *Check New Product* 118.

IF YOU DO not see a listing in these columns of products or services you are interested in write "Buyers' Directory," 7720 Sheridan Road, Chicago 26, Illinois, for such information. It will be furnished quickly and without charge.

READER'S SERVICE DEPT.

T - E - M
3 - 1 - 57

■ **PLEASE PRINT**

NAME: .....

TITLE: .....

COMPANY: .....

ADDRESS: .....

Telephone Engineer Publishing Corp.
7720 N. Sheridan Road
Chicago 26, Ill.

■ **Please send me information on the following items: — (Check Items Wanted)**

NEW PRODUCTS

NP 115..... NP 116..... NP 117..... NP 118.....

SERVICES AND SUPPLIES

ADV. 1..... ADV. 2..... ADV. 3..... ADV. 4..... ADV. 5.....

ADV. 6..... ADV. 7..... ADV. 8..... ADV. 9..... ADV. 10.....

ADV. 11..... ADV. 12..... ADV. 13..... ADV. 14..... ADV. 15.....

THE CLEARING HOUSE

Published in each issue of Telephone Engineer & Management. Advertising forms close on 1st & 15th of month. Rates 15 cents a word except for Situation Wanted ads, which are only 10 cents per word. In figuring cost of ads, count each word of address in number of words used. All ads payable in advance. Minimum charge—$2.00. Special rates for display ads on request. Send copy and box number replies to Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Ill.

HELP WANTED

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1211 Kenmore Avenue, Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

COMMUNICATIONS ENGINEER WANTED

Engineer with degree in communications and 1-3 years experience in telephone industry for interesting position. Will consider 2 or 3 years college with several years experience. Diversified and independent work covering all types of commercial communication systems and apparatus. Location New York. Submit complete application. Box 9058 Telephone Engineer Publ. Corp., 7720 N. Sheridan Rd., Chicago 26, Ill.

HELP WANTED: "Revenue Accounting Supervisor for Class A telephone company operating 16 exchanges in Northern Illinois. Salary commensurate with experience and ability. Ample oportunity for advancement. Employe pension and benefit plan in effect. Address reply to Mr. K. L. Schroeder, Northwestern Telephone Company, 304 West Main Street, Freeport, Illinois.

PLANT ENGINEERS — For large Independent Telephone Company. Some experience necessary. In reply state age, educational and employment history. Address reply to Personnel Supervisor, Rochester Telephone Corporation, 10 Franklin Street, Rochester 4, New York.

HELP WANTED: Cable Splicer, experienced. Give age and employment history. Steady job for reliable man. Location, Southern Indiana. Write Box 9053 Telephone Engineer Publishing Corp., 7720 N. Sheridan Rd., Chicago 26, Illinois.

SITUATION WANTED

SITUATION WANTED: To operate and manage Telephone Exchange. Have had thirty years experience. Prefer the middle west. Reply Box 9059, Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Illinois.

FOR SALE

TELEPHONE RINGING POWER UNITS

Subcycle Model B.	$30.00
Subcycle. Model M.7 .5	$20.00
Telering. Model H.	$10.00
Kellogg #41, Pole Changer, 24 v. Batt. Input. 100 Volt. 20 Cy output	$15.00

Prices F.O.B. Chicago, Illinois.

INDEPENDENT TELEPHONE REPAIR CO.

2137 West 21st Street, Chicago 8, Illinois

For illustrated literature on this pay-out, take-up wire reel, write

Whitaker Reel Mfg. Co.

P. O. Box 1318
MONROE, LOUISIANA

FOR SALE

FOR SALE: North Board C X6-90 Equipped seventy line 7 Universal links, 3 Bell trunks. Will be released from service before March 1st. $3000 or best offer.
Vergas Telephone Co.
Vergas, Minnesota

FOR SALE
WESTERN ELECTRIC NO. 392 LOUD BELLS
Refinished and tested, with condenser — $6.00 each.
Telephone Equipment, Inc., Montrose, Mich.

WANTED TO BUY

WANTED TO BUY: Immediately. Two experienced men want company that can provide reasonable living by owners doing all work. Reply Box 9057 Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Illinois.

USE TELEPHONE ENGINEER AND MANAGEMENT'S CLEARING HOUSE
To locate workers—jobs—merchandise. A small ad covers the field.

Line Additions for Western Electric Switchboards

(Reconditioned)

LINE and CUT-OFF RELAYS

AB-1 AB-4
AB-2 AB-6

JACK and LAMP STRIPS

No. 141 Jacks on No. 112 Mtg (20 per)
No. 295 Jacks on No. 112 Mtg (20 per)
No. 193 Jacks on No. 122 Mtg (20 per)
No. 49 Jacks on No. 114 Mtg (20 per)
No. 12 Lamps on No. 137 Mtg (20 per)
No. 12 Lamps on No. 144 Mtg (20 per)
No. 12 Lamps on No. 102 Mtg (20 per)

PROTECTION

No. 1268-A No. 1269-A No. C-50

Whatever Your Needs May Be . . . It Pays to Call on BUTELCO

BUCKEYE TELEPHONE & SUPPLY CO.

P.O. Box 5707 Phone HU 8-0655 Columbus 21, Ohio

"Sun Dial" Celebrates 25th Anniversary

FLORIDA'S smallest newspaper celebrated its 25th aniversary last month with a circulation nearing the quarter-million mark.

The tiny paper, long recognized as the state's smallest by the Florida Press Association, is the *Sun Dial*, published monthly by Peninsular Telephone Co., Tampa, Fla. First issued in 1932, the *Sun Dial's* present circulation of 232,000 now goes to telephone subscribers in the hundred-odd cities, towns and communities of Florida's central west coast area, plus a special mailing list to 122 cities in 35 states.

In addition, all issues go to addresses in Canada, Cuba, Hawaii and Argentina. Most out-of-state copies are mailed to industrial concerns, schools, and other telephone companies. Of 100 American schools and colleges which made requests to be placed on the mailing list the farthest away are the Universities of Illinois and Minnesota.

Ohio heads the list of states in number of cities to which copies are mailed, with 13. Ten different cities in Illinois receive copies, as do several far western points in California and Washington.

Although it has only four pages, five and one-half by seven inches in size, the total number of copies issued since the paper's beginning (more than 22½ million) set end-to-end would reach from Tampa to Los Angeles and back.

Despite its size, the Sun Dial contains many of the features found in its largest contemporaries. Probably the most popular is the column of philosophy and fun, "Along the Line," in each issue. Other features appearing regularly are editorials, cartoons, and various attributes of a modern metropolitan newspaper.

EXTRA, EXTRA! — MISS LOU WOODALL turns paper boy to deliver a special 25th anniversary issue of "Florida's smallest newspaper," published by the Peininsular Telephone Co., Tampa, Fla. This one is just 25 times normal size.

Some years ago, questionnaires were sent to 20,000 subscribers, asking them to state their interest in receiving the paper. Ninety per cent of the replies said they read it regularly. Only five per cent said they never read it.

Along with Sun Dial's birthday, J. Hartwell Jones, who originated the miniature publication, celebrated his 25th anniversary as its editor.

General of S. E. Names Duncan To Traffic Post

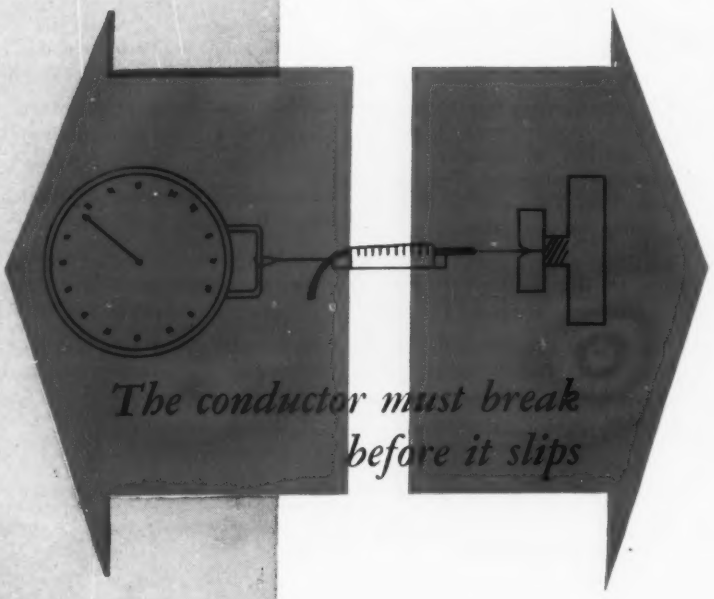
H. H. DUNCAN, traffic manager for General Telephone Co., of the Southeast at Bluefield, W. Va. since 1950, has been transferred to Durham, N. C., as general traffic supervisor for the Southeastern Group of General Telephone Operating properties. Working under Gordon Saunders of Durham, general commercial and traffic manager, Mr. Duncan will have direct supervision of traffic activities of group companies located in Georgia, Tennessee, South Carolina, Virginia, West Virginia and North Carolina.

Electronics Exposition Held In Mexico

PICTURED at one of the displays at the First National Congress and International Exposition of Electronics, Telecommunication and Broadcasting held recently in Mexico City are, from left to right: *Juan de Dios Calderon Galicia*, sub-director and inspector General de Correos and Telecommunications, Guatemala; *Juan Ramon Uribe*, assistant chief of technical department, Ministry of Communications, El Salvador; *Antonio Ramirez Fernandez*, technical secretary National Electrical Institute, Costa Rica; *Guillermo Calderon*, chief of technical department, Ministry of Communications, El Salvador; *Luis Pitigliani*, vice president, Automatic Electric de Mexico, S. A.; *Humberto Herrera Donada*, chief of the technical department of radio, Directorate General of Telecommunications, Guatemala; *Aneglo de Tuddo*, agriculture economist, United Nations; *Gonzalo Sagastume*, chief of technical department Directorate General of Telecommunications, Gutemala; *Major A. Arriaza*, Guatemalan army; *F. Reyes*, engineer, Henry S. Dabdoub S. A.

ALPHADUCT

P clamp adhesion test



P clamps are the most widely used method of attaching drop wire to buildings. Lest you may worry about a P clamp causing slipping of the insulation or jacket on Alphaduct Neoprene Jacketed Drop Wire — read about this Alphaduct service test. This test is made daily.

A sample of Alphaduct wire is inserted in a P clamp with 12 inches of the wire projecting from the top of the clamp. The bail of the clamp is then inserted in the upper jaws of a tensile testing machine, and the end of the wire is stripped free of jacket and insulation and inserted in the other end of the machine.

The jaws of the machine are then gradually separated until the conductor breaks. The conductor must break before there is ANY slipping of either the jacket or the insulation.

Don't have any worries about a little old P clamp hurting ALPHADUCT drop wire. Try Alphaduct. It's dated by a color coded thread so you can see for yourself how long it lasts, how much money it saves.

ALPHADUCT WIRE AND CABLE COMPANY • NEW BRUNSWICK, N.J.
NATIONAL DISTRIBUTORS • AUTOMATIC ELECTRIC SALES CORP., CHICAGO, ILLINOIS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS. REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVLLE, VA. THE LINDSAY TELEPHONE SUPPLY CO.. CLEVELAND, OHIO.

New Rates Approved For Kansas Co-op.

S&T TELEPHONE Co-operative Association, Brewster, Kans., has been granted an interim dial rate schedule for three exchanges.

The rates include $8.25 monthly for one-party business telephones; $5.50 for one-party residence telephones; and $4.75 for rural residential service at Brewster, Kanarado and Levant.

Leroy Telephone Co., Leroy, was granted an annual increase in rates of $1,701.20, affecting 244 customers.

General of Kentucky Plans Construction Budgets

GENERAL Telephone Co. of Kentucky, through its President H. J. Huether, Jr., has announced its construction budget for 1957 and 1958.

Company-wide, nearly $2,500,000 was spent on construction in 1956; it is planned to spend more than $3,700,000 in 1957 and $4,400,000 in 1958. Based upon the company's present scope of operation, some $17,000,000 has been budgeted for the next five years.

The total gross investment in telephone plant on December 31, 1956 was over $21,000,000. At the end of 1957, it is expected to be approximately $25,000,000 and at the end of 1958 close to $29,000,000. The present investment for each telephone in service is $271; at December 31, 1957 it will be $290 and at December 31, 1958 it is expected to be $306.

During 1956 the company paid approximately $2,200,000 in taxes, which when related to the average number of telephones in service amounted to $28.60 annually, or $2.40 per month. Naturally, these taxes are part of the telephone bill paid by each subscriber.

General of Kentucky Advances C. L. Morrison

CHARLES L. MORRISON has recently been assigned the duties of general plant extension engineer for the General Telephone Co. of Kentucky, according to an announcement by H. J. Huether, Jr., president of the company.

Mr. Morrison started his telephone career with the General System in 1946 and has held various positions in the Plant and Engineering departments, his most recent one being Transmission and Plant Engineer.

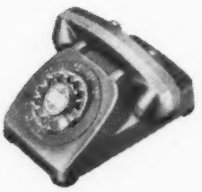
AUTOMATIC ELECTRIC TOPICS

MARCH 1957
VOLUME 21
NO. 9

Guess the Most Popular Telephone Colors (see next page).

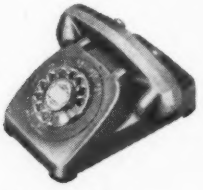
Telephone Color Preferences--

Can You Rate Them?



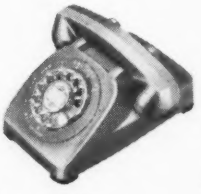
☐ Classic Ivory

☐ Jade Green



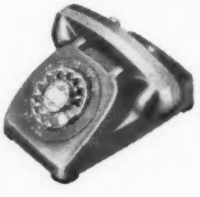
☐ Colonial Blue

☐ Sand Beige



☐ Dawn Gray

☐ Sunlight Yellow



☐ Garnet Red

☐ Turquoise

When it comes to colors, everyone has a favorite. And that's true with telephone colors, too. Certain preferences are reflected in production output of telephones in eight sparkling colors at Automatic Electric's factory. Although preferences may vary from area to area, a good general idea of how the colors rate may be gained from such production figures. Think you can list the colors in order of popularity? Try it. Just number the blanks at left in the order you think the colors rate, from first to eighth.

Answers are printed elsewhere on this page. We hope you score well, but we know you'll have the perfect answer to selling telephone service with Automatic's telephones in full color. With a color to enhance any room or office, these telephones can mean more extensions and new subscribers. Hundreds of telephone companies have learned this for themselves.

Here's the answer — telephone color preferences, based on Automatic's production.

1. Classic Ivory
2. Sand Beige
3. Turquoise
4. Sunlight Yellow
5. Garnet Red
6. Jade Green
7. Dawn Gray
8. Colonial Blue

***To help you* "sell color," we offer a lot of sales aids. These include: Miniature Monophones in full color (set of eight, $10.00), "Talk with Color" counter cards, bill inserts and circulars, Monophone Color Visualizers (25 cents each), "Do It Yourself" display books, sample press releases, and newspaper ads. Would you like to see samples?**

Nebraska State Capitol Goes Modern— *All the Way*

Bedric Wanek, Lincoln Telephone and Telegraph Company Service Engineer, observes the action at the three-position switchboard after the cutover to a new Automatic Electric P-A-B-X system at the Nebraska Capitol. The Capitol is one of the Company's largest "exchanges."

The design of the Nebraska State Capitol broke a tradition.

The Nebraska State Capitol at Lincoln, completed in 1932, broke a precedent of 100 years in design of legislative buildings. Governments for the most part had been housed in classic, columned structures, usually with a center dome flanked by two wings.

The problem of a new design was presented to Architect Bertram Grosvenor Goodhue, and he solved it masterfully. His design was that of an expansive rectangle, divided by a cross into four courtyards. This part of the building is two stories high. The center of the cross, housing a rotunda, is the base for a many-storied tower 400 feet high and topped with the figure of a sower.

Until a short time ago, telephone facilities which had grown up during the years consisted of four small P-A-B-X and four manual switchboards. Calls between departments frequently necessitated the intervention of an operator. Now, the telephone service has been modernized by the installation by Lincoln Telephone and Telegraph Company of a new Automatic Electric P-A-B-X system to provide dial service to all state offices in the Capitol, except the Supreme Court stations.

The new system has 40 trunks, feeding into a three-position attendant cabinet with connections to 257 main stations and nearly as many telephone extensions. The capacity of the attendant cabinet is 500 lines, and the dial switching equipment has 45 selectors and 35 connector switches.

Some other interesting facts about Lincoln concern the way it got its name. Back in 1867, the area of Nebraska known as the South Platte region had a majority in the first state legislature. They chose the opportunity to introduce a resolution that the capital be relocated in their section. Opponents of the bill managed to tack on an amendment that the capital be named "Lincoln," in the belief that this name would be distasteful to the Democrats in the area and force defeat of the resolution. However, the amendment was accepted, and the capital was relocated in southeastern Nebraska.

We don't know what that first capitol building at Lincoln looked like, but we're sure the present structure, inside and out, is one of the most modern in the country —especially with its new P-A-B-X system.

For Peninsular Telephone Company

FOUR CUTOVERS

IN THREE MONTHS

Peninsular Telephone Company's four new exchanges — at Winter Haven, St. Petersburg (Hemlock office), Lake Alfred and Auburndale, Florida.

From the very beginning, Peninsular Telephone Company, with headquarters in Tampa, Florida, has had a history of growth and progress. Organized in Tampa in 1901, the Company's first franchise was for 300 telephones in that city. Today Pentel provides dial telephone service through 292,000 stations — more than one-fifth of all the telephones in Florida. It was an early user of Strowger Automatic, the first installation having been made in 1914 — almost 43 years ago.

Still keeping on top of the times in its mid-Florida territory, Peninsular recently installed Strowger Automatic in four new buildings. One, the Hemlock office in St. Petersburg, began operating January 20 on Strowger type equipment with 6100 lines, 18,000 terminals, incorporating "2-5" numbering.

Designed to serve some of the growing business of the present Main and Center offices, the Hemlock exchange is housed in an extensive one-floor building which harmonizes with its surrounding St. Petersburg residential area.

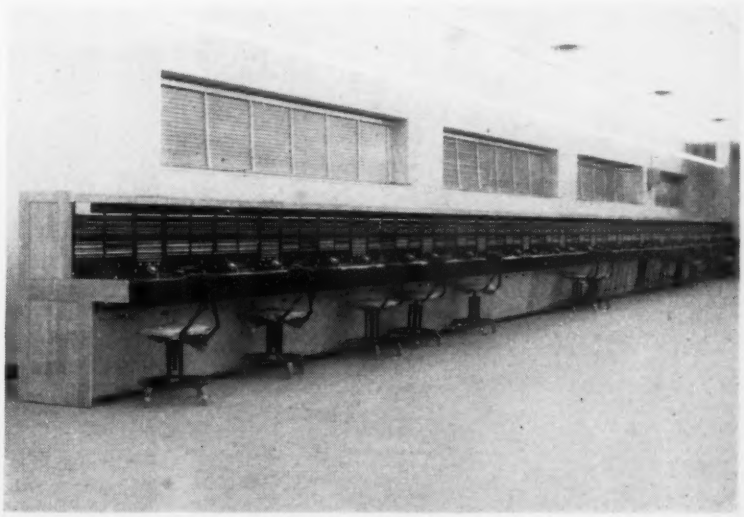
East of St. Petersburg, near the geographical center of Florida, are grouped the towns of Winter Haven, Auburndale and Lake Alfred. These three exchanges were cut to Strowger Automatic on November 4, 1956.

In Winter Haven the new exchange replaced Strowger Automatic equipment which had served dependably for 25 years. Growth in the number of subscribers, and technical advances in Strowger Automatic, prompted Pentel to order a new 4600-line, 12,000-terminal installation—1200 lines more than the previous equipment—with provision for much greater future growth. At the same time, 1200 lines (3000 terminals) were cut into service at Auburndale. And in Lake Alfred a new exchange came into being, with the installation of a 400-line, 1000-terminal Strowger Automatic Switchboard. Lake Alfred is about four miles from Winter Haven, and its subscribers formerly were served by the Winter Haven office.

The exchange and toll center at Winter Haven is housed in an ultra-modern three-story building, "the finest telephone plant in Florida" (we have this on the authority of O. C. Stanley, a Pentel man for 40 years and Winter Haven's manager for the past 33). And that's not to say that Winter Haven has received *all* the attention; in Auburndale and Lake Alfred, Peninsular has also built handsome, modern structures that are a credit to the Company and to these communities.

Peninsular Telephone Company is justifiably optimistic about Strowger Automatic and the future of this area. The exchanges at Winter Haven and Auburndale are each designed for expansion to 30,000 terminals, while Lake Alfred facilities can be readily increased to 10,000 terminals.

Dave Kindred, Peninsular Installation Supervisor; A. W. Anders, Pentel Building and Equipment Engineer, and E. L. McKee, Automatic Electric installer, make late check of Strowger equipment prior to cutover in Winter Haven.



Waiting for the cutover were 30 places at the new switchboard for long distance operators, at the Winter Haven Toll Center.

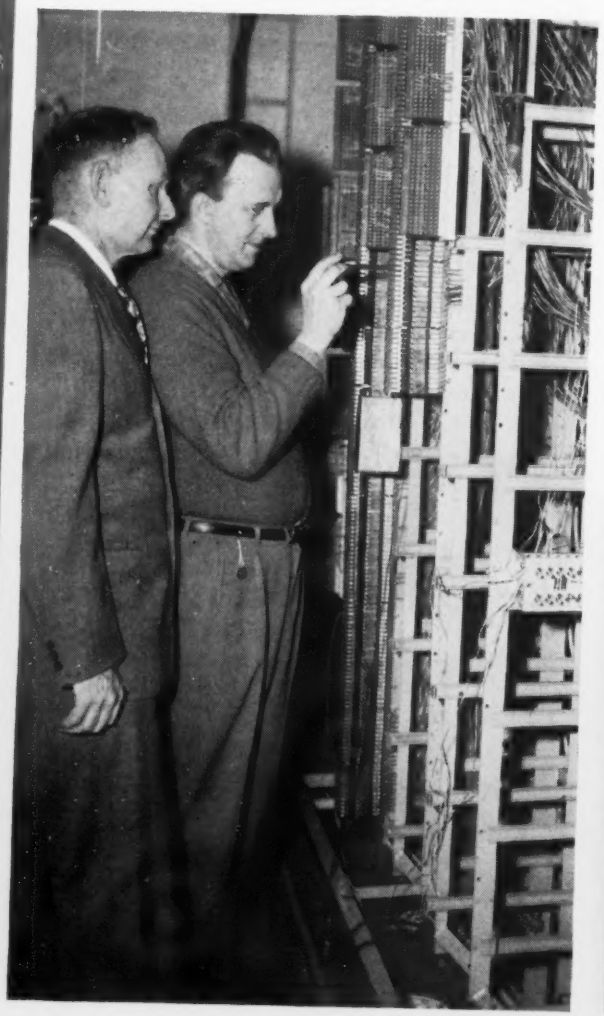
Telephone News Briefs

Rodney M. Coggin, President of Tidewater Telephone Company, Warsaw, Virginia, recently was notably honored by his friends and associates in Richmond County. He was presented the county's Distinguished Citizen Award for 1956. Nomination for the annual award is made by a committee representing all civic clubs in the county, and the actual presentation is made by the Richmond County Ruritan Club, here represented by T. D. Marks.

Mr. Coggin may be described as a founder. He established the Tidewater Telephone Company in 1945. At that time the Company employed some 85 persons. Now there are 175 employees, and the Company serves more than 15,500 subscribers.

He was instrumental in incorporating the town of Warsaw, ten years ago, and he helped found the Warsaw Masonic Club and the Warsaw Rotary Club, serving the latter as its first president. Thus, the award was presented to Mr. Coggin not only for his civic interest in 1956, but because of his activities and accomplishments in past years as well.

A native of southwestern Virginia's Franklin County, Mr. Coggin went to the state's northwestern section in 1917 and was manager of the old Northern Neck Telephone and Telegraph Company. He is married to the former Miss Clara Morgan, and they have three children. One son, Younger J. Coggin, is associated with the telephone company.



(Left) **Hollis (New Hampshire) Telephone Company,** Inc., recently ended 54 years of manual telephone service with a cutover to dial. Henry H. Hildreth, Manager, watches testing of installation by Automatic's installer Einar Anderson. The new equipment, 160 lines (400 terminals) of Automatic Electric's Type 11 M-A-X, permits toll-free dialing between Hollis and Nashua. The Hollis company had its beginning in 1902 with three customers.

W. E. Lyon (left), **General Manager, Mid-Texas Telephone Company,** Killeen, Texas, and Automatic's Howard Housley seem to be very pleased with the features of Automatic's Type 80 Monophone. The telephone men got together at the convention of the Oklahoma Telephone Association. In the background are Miniature Monophones in full color, used for display purposes.

Engineers Present Facts On New "Four-Wire" Switching System

The complete story of our new Type "FW-1" Intertoll Switching System is given in current issues of the Automatic Electric Technical Journal. It comprises 16 articles, eight in the December, 1956, issue, and eight to appear in the March, 1957, issue.

This four-wire switching system, which takes advantage of certain characteristics of the "hybrid" bridge circuit, was developed and engineered under the supervision of Imre Molnar, Ph. D., Director of Telephone Switching Systems Development, General Telephone Laboratories, Inc., with the close co-operation of the British Columbia Telephone Company, Vancouver, B. C., Canada. The first installation of the "FW-1" System was made in the New Westminster exchange of the latter company, and equipment for almost 300 additional positions, for installation in several of its other exchanges, is now in production.

Written by the engineers who actually developed this important contribution to toll operating techniques, the engineering details on the system will be of interest to "non-technical" people as well as to more technically minded engineering men.

The Automatic Electric Technical Journal is published in the interest of our many friends, and is our way of telling them about new and exciting developments in communication and electrical control. The Journal is intended not only for engineers and technicians, but for any telephone man who is interested in technical details of modern communication. If you would like to receive a copy of the current Journal, just let us know — or ask your Automatic representative to get it for you.

First shift of operators on the new FW-1 automatic toll switchboard at the Lakeview exchange.

MEMO

Dear Harry,

Funny how things sometimes happen in patterns. Just the other day my wife lost her personal telephone directory--the very day she had to call a meeting of her bridge club. Boy, did she fume after about ten looks through that big telephone book of ours. Shuffling and leafing, looking here and there ...you know how women are. (And when she got a wrong number--had to look it up again--wow!)

Anyway, here's the connection. You know I went over to Tom's office in Sideville yesterday. Well, there on his desk was this gadget, about the size of the telephone it sat next to. It was called the Kilburg "Dialaphone," so I figured that it must dial telephone numbers (yes, yes, I know--"brilliant!").

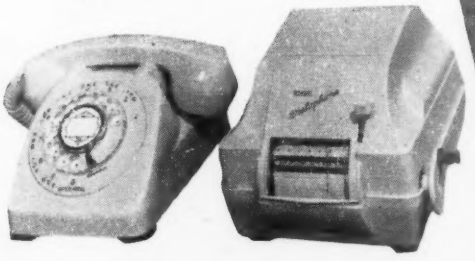
Tom was quick to show me how it works. He just picked up the telephone handset, twirled a little crank on the Dialaphone and pushed a button. Then he just sat back and waited for the Dialaphone to get the number for him.

He tells me the directory strip in his Dialaphone was made up especially for him. It lists the names and numbers he requested, and it is pre-punched to send out the number he wants when he twirls the tape into position. Tom's telephone company installed it (extra revenue there!), and he says that he can add names and punch new numbers in the tape himself--up to a total of 850 name-number combinations.

I tried it once myself. It's really easy...fast ...and accurate. (Saves looking up numbers in the first place, so you just can't get a wrong number.)

So I've ordered a Dialaphone myself. And it's got <u>your</u> number on it--as well as all the "girls" in Ella's bridge club.

Gus



This Dialaphone comes in all the popular telephone colors as well as black

Published by

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

Chicago, U.S.A.

John Sharkey, Editor

INDEX TO ADVERTISING

Acme Visible Records, Inc. 46-47
Acorn Insulated Wire Co. 64
Alaphaduct Wire & Cable Co. 68
Aluminum Co. of America
American Creosoting Co.
American Tel. & Tel. Co.
Ansonia Wire & Cable Co.
Anaconda Wire & Cable Co.
Armstrong Cork Co.
Arrow Fastener Co.
Automatic Electric Sales Corp. 4, 16-17, 50-51, 69-76

Bakelite Co. 53
Barber-Greene Co.
Bartlett Mfg. Co.
Bashlin Co., W. M. 64
Benner-Nawman Co.
Berry & Co., L. M. 7
Bohnsack Equip. Co.
Buckeye Telephone & Supply Co. 23, 66
Burgess-Manning Co.

C & D Batteries, Inc.
Cable Spinning Equipment Co. 12
Calculagraph Co., Inc. 62
Carter Motor Co.
Chance Co., A. B.
Collins Radio
Columbus-McKinnon Chain Corp.
Columbia Electric Mfg. Co.
Commercial Cord & Supply Co. 64
Communi-Catering
Cook Electric Co. 21, 32
Copperweld Steel Co.
Crane, Carl C. 63
Cullom & Ghertner Co. 63

Davis Construction Co. 63
Donnelley & Sons, R. R.

Executone, Inc.
Exide Industrial Div'n.
The Electric Storage Battery Co.
Fitchburg Engr. Corp.

Greeco, Inc. 27
General Cable Corp.
General Electric Co.
General Insulated Wire Co., Inc.
General Machine Products, Inc. 59
General Telephone Directory Co. 2, 64
Giant Mfg. Co. 64
Gould National Batteries, Inc.
Graybar Electric Co.
Greenlee Tool Co.
Gladwin Plastics, Inc.

Harris-McBurney Co. 63
Henkels & McCoy
Highway Trailer Co. 64
Holtzer-Cabot
Hycon Eastern Inc. 6

International Business Machines
Independent Tel. Repair Co. 66
Indiana Steel & Wire Co. 77
International Harvester Co.
Instrument Laboratories

Katolight Corp.
Kearney, James R., Corp.
Kellogg Switchboard & Supply Co. 8-9, 60-61
Kennecott Wire & Cable Corp.
Keystone Steel & Wire Co.
King, W. T.

Klein & Sons, Mathias 18
Koiled Kords, Inc.

Leich Sales Corp. 10-11
Lindsay Telephone Supply Co. 49
Line Materials Co. —
A McGraw Electric Co. Div.
Lorain Products Corp.

Markwell Mfg. Co.
McCabe Powers Auto Body Co.
McNulty, Dan
Minnesota Mining & Manufacturing Co.
Mitchell, Jay G. 63
Murphy Engineering Laboratories, Inc.

Natco Corp.
National Standard Corp. 19
National Tel. Supply Co. 80
Neale Construction Co. 63
Neuses, Inc., P. K. 63
North Electric Co. 14-15
Northwest Radio & Television School

Ostlund, Evert M. 63
Overton Co.
Owens Illinois Glass Co.

Page & Hill, Inc.
Plastic Wire & Cable
Porcelain Products Inc.
Prairie Schooner Inc.
Preformed Line Products Co. 79
Power Tools Corp.

Raytheon Manufacturing Co.
Reliable Electric Co. 13, 64
Remington Rand, Inc.
Rex Corp.
Reynolds Metals Co.
Roll-A-Reel Corp.
Runzel Cord & Wire Co. 64

Schauer Manufacturing Corp.
Seymour Smith & Son, Inc.
Sherron Metallic Corp. 64
Sloan, Cook & Lowe
Stahl Metal Products 20
Stewart Bros.
Stromberg-Carlson Co. 30, 40-41, 54-55
Sturgis Posture Chair
Superior Cable Corp. 3
Suttle Equipment Co. 63

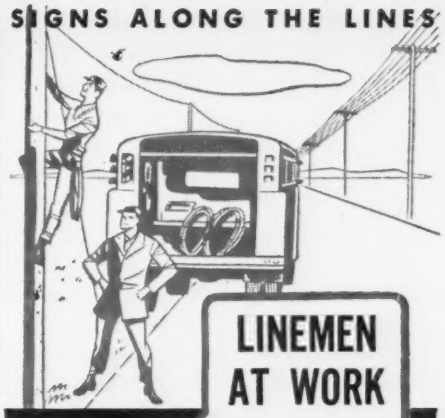
Taylor-Colquitt Co. 64
Tel-E-Lect Products, Inc. 64
Teletype, Inc.
Telephone Accounting Services 63
Telephone Answering & Recording Corp.
Telephone Engineer Publishing Corp. 22
Telephone Equipment Co. 66
Telephone & Power Supply Co.
Telephone Repair & Supply Co. 64
Telephone Supply Corp.
Telkor, Inc.
Texas Creosoting Co. 64

Universal Controls, Inc. 23
U. S. Independent Tel. Assoc.
U. S. Steel Co. (Chem. Div.)
U. S. Steel

Western Electric Co.
Whitaker Reel Mfg. Co. 66
Whitney Blake Co. 56-57
Williams, Geo. E., Co.
Williams Inspection Co., A. W. 63
Wyoming Valley Equip. Co.

York Hoover Corp.

SIGNS ALONG THE LINES



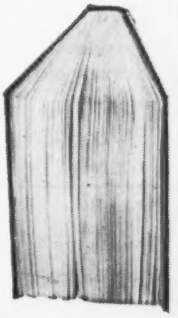
LINEMEN AT WORK

USING Crapo GALVANIZED GUY & MESSENGER STRAND

Positive strength and durability economies, combined with the superior qualities of steel, make Crapo Galvanized Steel Strand a rugged performer. The heavy, ductile, tightly-adherent galvanized coating — applied by the famous Crapo Process — provides dependable protection for the steel, prolongs the expectant life of the strand. There is a size and grade of Crapo Galvanized Strand for every practical need.

INDIANA
STEEL & WIRE COMPANY, INC.
Muncie, Indiana

HOW TO SUPERVISE PEOPLE



Third Edition

This book is simple, easy to read, gives really practical facts of better supervision to use on the job. It covers all the typical jobs and problems of hiring, discipline, preventing accidents, promoting team work, training workers, delegating authority, labor relations, etc. It makes plain helpful techniques for handling them, with examples of typical problems and specific solutions now being used in general practice. Question material that suits the book well for conference training is included. *By Alfred M. Cooper. 3rd Ed. 254 pp. $4.00*

Telephone Engineer Publishing Corp
7720 Sheridan Road,
CHICAGO 26, ILLINOIS

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"The Weaker Sex?"

VIVIAN RALPH, chief telephone operator at Vancouver's Kerrisdale exchange, says when it comes to telephone conversations, men run a poor second to the daintier sex.

The longest conversation record at the Kerrisdale exchange, she says, was made by two women who discussed various feminine topics for eight hours.

"I checked the eight-hour conversation," Miss Ralph said, "and I've known a six-hour talk here at Kerrisdale exchange. Two-hour conversations are recorded daily and considered not unusual. . . . "

Next comes the younger generation.

"You should see our switchboard when the teen-agers start calling one another after an Elvis Presley television appearance. I suppose they are calling each other to say how wonderful he was," she said.

Then comes father's chance.

Every day during the World Series says Miss Ralph, there is a definite lull. The minute it's all over, however, the men dash for the telephone to tell friends they knew Mickey Mantle would come through or how the Dodgers were robbed.

"Another Year Older, And . . ."

YOU ARE $24 less in debt than you were last year. So says the government, anyway. Seems our population has grown so fast in the past year that the amount each of us "owes" on the total debt of Federal, state and local government is now $1,909. In fiscal 1955, it was $1,933.

But there is cold comfort in that $24 per capita reduction. Especially when you figure that the owings of all government are at an all-time high. At the end of fiscal 1956 (last June 30), they stood at $321 billion, up $3 billion in a single year's time.

Up at the top — or bottom, if you prefer — was the Federal government, owing $273 billion. Next, the local governments owed $35 billion. And last, the states, which collectively owed $13 billion.

As recently as 1946, according to the Tax Foundation, the average citizen owed only $97 on local government debt. By 1955, per capita "owing" had risen to $201. And there's every prospect that final 1956 figures will show the per capita share of local debt to be higher. As of fiscal 1946, the average citizen "owed" only $17 on state debt. As of fiscal 1955's end, this figure was up to $69. Here again, indications are that by the time final figures are in, the per capita amount owed on state debt will increase.

Payments per capita for interest on the Federal debt are expected to reach a record high, too. The figure is estimated to be $41.87 for fiscal 1957 as against $41.34 in fiscal 1956. Back in fiscal 1913 — when debt interest payments were $23 million (as against 1957's anticipated $7 billion) — the per capita figure was 24 cents.

By and large, the overall debt total can be attributed to one simple fact — all levels of government have been spending and contracting to spend more than they collected in taxes. More careful thought — followed by a conscious care for how the public money is spent could reduce this staggering debt total, and perhaps put many times $24 in the pockets of each of us. . . . . *Didn't want to ruin your day — but thought you should be interested.*

Courtesy By Phone

WE HEAR a Connecticut businessman was pleasantly shocked in Houston, Tex., recently. He was cut off in the midst of an important telephone call to New York. Just after the call was resumed and completed, he was surprised to have the long-distance operator ring him up and apologize for the interruption. She also added that charges for the call would be adjusted to a minimum rate.

The pleased visitor asked: "Is this another evidence of Texas courtesy or is it a general policy of the telephone company?"

"I don't know, sir," she replied, "but it is our policy here."

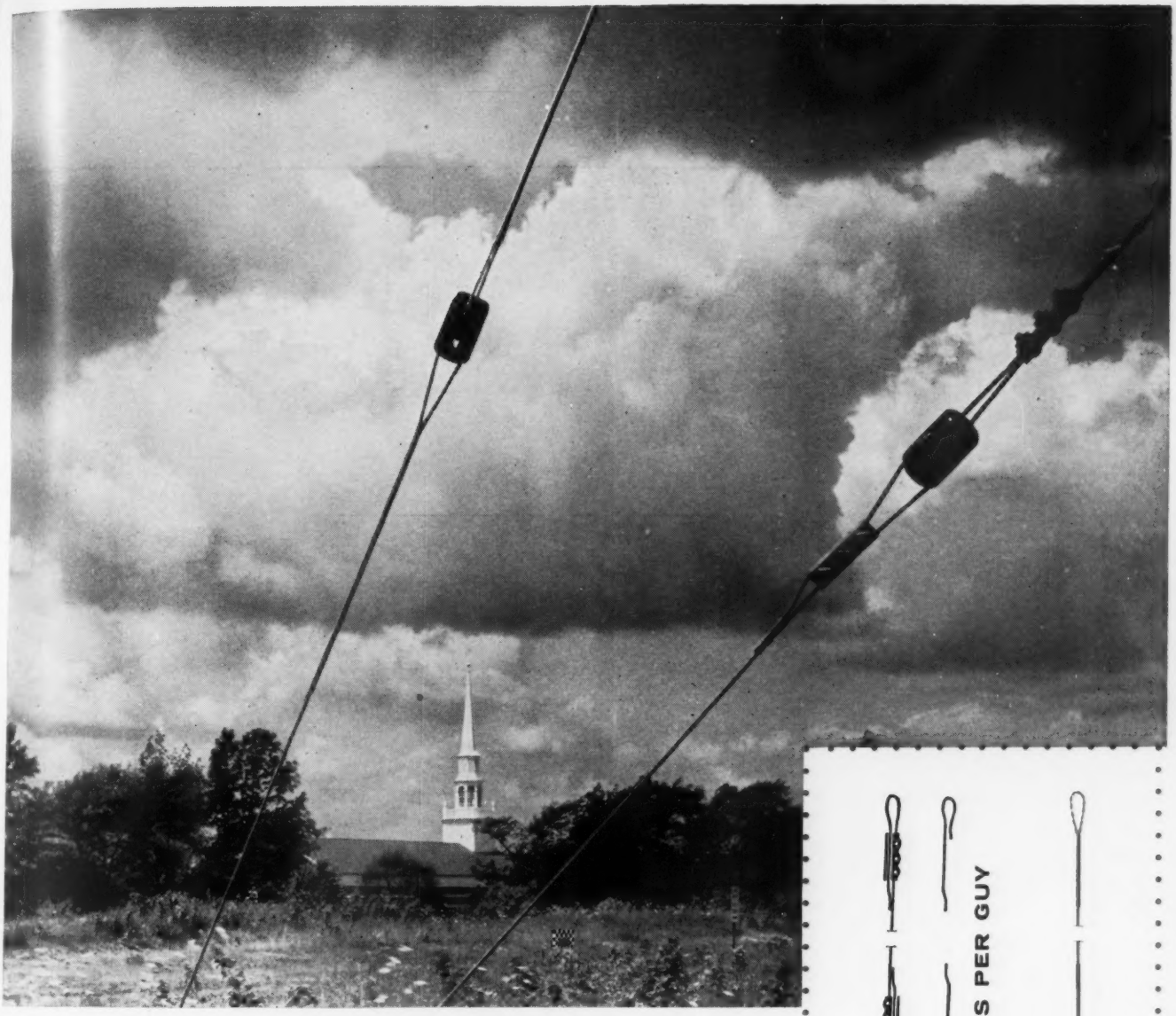
Much of the cold impersonal brusqueness of business procedure could be eliminated if enough individuals would apply ordinary Christian courtesy to everyday dealings.

There is a happy contagion to courtesy. It requires little effort, yet it spreads with chain reaction. Everyone can do something to apply the warmth of courtesy to a world which can easily become very cold and heartless without it.

Sit Home And See The Movie

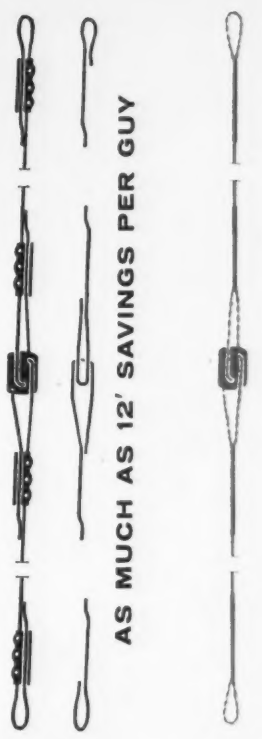
NOW COMES a brand-new development that makes it possible for people to go to the movies without leaving their living rooms. According to *Changing Times*, the new idea is called Cable Theater, and in involves transmitting first-run movies from the theater to the TV screens of paying subscribers. Cables will be strung from the theaters into residential areas. Anyone can sign a contract.

Then, at so much per month, subscribing families will watch the shows without worrying about baby sitters, parking problems, crowds. If they don't like the movie they can switch back to local TV shows. Rates are not set yet, but the first installation will be in Bartlesville, Okla. Future plans depend on the results there.



Up to 30% savings in strand... with PLP Guy-Grip Dead-Ends

You will find real guying economy with PLP Guy-Grip dead-ends. Because they eliminate strand looping, you can use *shorter, straight* lengths of guy strand. This means as much as 12 feet savings in strand per guy. What's more, the finished installation is neat, streamlined, efficient.



PX-80

Made in accordance with or for use under U. S. Patent No. 2,761,273; other patents issued and pending.

PREFORMED LINE PRODUCTS CO.

5349 ST. CLAIR AVENUE • CLEVELAND 3, OHIO
DEPT. NO. TR1A
Telephone: Cleveland EXpress 1-3571

THIS *Nicopress* SLEEVE

plus

THIS *Nicopress* 17-2 TOOL

Make better pair splices faster than you've ever made them before!

THE NATIONAL TELEPHONE SUPPLY COMPANY

Ask Your Jobber

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr. — N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor — INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company